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The interest of the State in tuberculosis dates from the early days of health organisation in England. After Villemin in 1865 had made his classical communication on the transmissibility of tuberculosis before the Academy of Medicine in Paris, Sir John Simon, medical officer of the Privy Council, enlisted Sir John Burdon-Sanderson's aid in carrying out experiments which confirmed those of Villemin, and announced the findings in his reports to the Privy Council in 1867 and 1868. Also, both before and after Koch's discovery of the tubercle bacillus much research work was carried out by Klein and others on tuberculosis, with the assistance of scientific grants from the Local Government Board; these researches are embodied in special reports which well repay perusal. In this connexion I would refer to the investigation into soil dampness as a cause of tuberculosis made by the late Sir George Buchanan (Ninth and Tenth reports of the Medical Officer of the Privy Council, 1866 and 1867). It will be recalled that the results obtained in this inquiry were supported by the independent work of Bowditch in America.

A further stage in the deepening concern of the State with tuberculosis was seen in the appointment of the Departmental Committee in 1888 to consider, among other matters, the best method of dealing with tuberculosis with a view to checking the progress of the disease in cattle. About this time, also, experiments were being carried out on the subject of tuberculous meat under the direction of the Veterinary Department of the Privy Council; records of these experiments are to be found in the annual report of that department for the years 1890 and 1891. Brief allusion may be made also to the Royal Commission on the question of the effect, if any, of food derived from tuberculous animals on human health. The first of these was appointed by the Government in July, 1891, of which Lord Basing was chairman. On Lord Basing's death the Commission was reconstituted in 1894 under the chairmanship of Sir George Buchanan. It examined many witnesses, and organised searching researches on definite prearranged lines. It reported in 1895, the conclusions as to the effect of the consumption of tuberculous milk on human health being specially important. Obviously, more stringent administrative measures were demanded, and in 1896 another Royal Commission considered this aspect of the question. Its findings received legislative recognition in the Dairies, Cowsheds and Milkshops Order of 1899.

In 1901, at the Tuberculosis Congress held in London in that year, Prof. Koch announced in his historical address that he felt "justified in maintaining that human tuberculosis differs in important respects from bovine tuberculosis and cannot be transmitted to cattle." He added that repetition of the experiments which had caused him to make this assertion was desirable; in his opinion, the infection of man by bovine tuberculosis was so rare that for practical purposes it might be ignored. The Government felt the issue to be of such importance that on August 21st, 1901, a Royal Commission, with the late Sir Michael Foster as chairman, was appointed to inquire and report with respect to tuberculosis: (1) Whether the disease in animal and man is one and the same; (2) whether animals and man can be reciprocally infected with it; and (3) under what conditions, if at all, the transmission of the disease from animal to man takes place, and what are the circumstances, favourable or unfavourable, to such transmission. The Commission worked for ten years, and published a valuable series of reports which indicated that Koch's statement could not be accepted in its entirety, that human tubercle bacilli can infect cattle under experimental conditions, whilst bovine tubercle bacilli are responsible for a considerable proportion of human tuberculosis, especially among children.

In 1902 the Local Government Board instructed the late Dr. H. Timbrell Bulstrode, one of their medical inspectors, to visit the public phthisis sanatoria in this country and report upon the various aspects of the sanatorium question. The report, a bulky volume of 670 pages, was published in 1908. In addition to detailed descriptions of English sanatoria, it gives a comprehensive account of the state of scientific knowledge of tuberculosis at that time, and considers many aspects of the tuberculosis problem. The report should be more widely known and more widely read than has been its fate hitherto. In 1909 Sir Arthur Newsholme, as medical officer of the Local Government Board, wrote an important memorandum on Administrative Measures in Tuberculosis, in which much of the tuberculosis organisation now in force was distinctly foreshadowed.

Establishment of the School Medical Service.

The establishment of the School Medical Service by the Board of Education in 1907 had an important bearing on the prevention and treatment of tuberculosis in the child. First, many minor ailments and conditions favouring or predisposing to tuberculosis were recognised by school examination and removed by the treatment advised, given or enjoined on the parents to be procured; secondly, when a tuberculosis service came into being, opportunities for the treatment of tuberculous children under the schemes of local authorities were available through the coördinated work of the school medical officer and the tuberculosis officer. The labours of the School Medical Service—as the annual reports of the Chief Medical Officer of the Board of Education clearly indicate—have already secured a great reduction in the incidence of tuberculosis in children of school age.

Notification.

Scotland, always in the van of progress, regarded pulmonary tuberculosis as an infectious disease within the meaning of the Public Health (Scotland) Act, 1897. In England and Wales, in a few towns prior to 1908, all cases of pulmonary tuberculosis were notifiable under local Acts of Parliament, while in an appreciable number of urban and rural districts voluntary notification of cases of pulmonary tuberculosis was invited by the sanitary authority and secured in some proportion of the total cases of this disease.

In 1907 special encouragement was given by the Local Government Board to the voluntary notification of cases of pulmonary tuberculosis; in 1908 the Board issued the Public Health (Tuberculosis) Regulations, making notification compulsory for cases of pulmonary tuberculosis, who came under the care of Poor-law medical officers, either at home or in Poor-law institutions; these regulations were followed by the Public Health (Tuberculosis in Hospitals) Regulations, 1911, providing for the compulsory notification of cases of pulmonary tuberculosis receiving treatment in public institutions; the Public Health Regulations (Tuberculosis), 1911, made the notification of all cases of pulmonary tuberculosis compulsory. Finally, in 1912, the Board's Order, extending compulsory notification to cases of all forms of tuberculosis and

* Delivered before the Tuberculosis Society on Jan. 18th, 1924.

consolidating the three previous orders as to notification, came into force. Notifications are sent by the medical practitioner to the medical officer of health of the district in which the patient is residing. Under the regulations the medical officer of health is made responsible for the action needed to trace sources of infection, or to remove conditions favourable to infection. This responsibility rests with him whatever may be the local system of organisation as to tuberculosis.

The National Insurance Act, 1911.

The resources for attacking the problem of tuberculosis were strongly reinforced by the passing of the National Insurance Act, 1911. This Act, which applied throughout Great Britain, dealt, as regards tuberculosis in insured persons, with (*a*) treatment, (*b*) erection of sanatoria, and other institutions; (*c*) research; and (*d*) education. It was open to the obvious criticism that only the insured persons in the community received specialised treatment for tuberculosis, and that the measure was not one of general public health.

The Departmental Committee on Tuberculosis.

The Government were naturally aware of this criticism and lost no time in meeting it. In 1912 the Lords Commissioners of His Majesty's Treasury appointed a Departmental Committee, under the chairmanship of Mr. (now Lord) Astor, to report at an early date upon the consideration of general policy in respect of the problem of tuberculosis in the United Kingdom. The Committee were also to consider the problem in its preventive, curative, and other aspects, and to advise the Government and local bodies as to the making or aiding of provision for the treatment of tuberculosis in sanatoria or other institutions or otherwise. The Committee issued two reports, an interim report in 1912 and a final report in 1913. In these reports the whole field of tuberculosis was surveyed, the available machinery was considered, and practical advice was given as to the organisation of schemes for the prevention and treatment of tuberculosis under the National Insurance Act.

Two important findings of this Committee were: (1) that any scheme which is to form a basis for the control of tuberculosis should be available for the whole community; and (2) that the organisation of schemes through the country can best be carried out if undertaken by local authorities.

TUBERCULOSIS SCHEMES FOR ENGLAND UNDER THE LOCAL GOVERNMENT BOARD.

In their circular of May 14th, 1912, the Local Government Board expressed their general agreement with the findings of the Departmental Committee on Tuberculosis, as set out in the interim report, and urged all county councils and county borough councils in England to formulate a scheme which should provide for the treatment of cases of tuberculosis within their area. There was a general consensus of opinion—already expressed, as we have seen, by the Departmental Committee—that complete schemes, not limited to insured persons, but available for the entire population, must be undertaken for effective control over tuberculosis. For these complete schemes funds other than those available under the National Insurance Act were required. In their circular letter of Dec. 6th, 1912, the Local Government Board stated that the Government were prepared annually to provide a sum of money equal to half the estimated cost of treating non-insured persons, including dependents of insured persons, under any scheme approved by the Local Government Board. The grant is often called "The Hobhouse Grant," as it was first announced in a letter from the Chancellor of the Exchequer to Mr. Henry Hobhouse, Chairman of the County Councils Association.

To summarise the position. The schemes for the treatment of tuberculosis, applying to the whole population, insured and uninsured, were carried out by county and county borough councils. The Local Government Board acted as a sanctioning or advisory body, and also as a subsidising body. A similar function is exercised by the Ministry of Health at the present time. The Board also gave grants to local authorities towards the establishment of institutions for the treatment of tuberculosis out of a sum of £1,500,000 which was set aside under the Finance Act, 1911, for this purpose. The scale of capital grants was: dispensaries, four-fifths of the cost, but not exceeding £240; sanatoria and hospitals, three-fifths of the cost, but not exceeding £90 a bed. The annual cost of a tuberculosis scheme was defrayed in the first instance by the local authority. There were receipts from the Insurance Committee to be taken into consideration, and half the deficit was paid by the Local Government Board. The money for this purpose was voted annually by Parliament. The remaining half of the deficit was borne by the local authority out of rates.

It is a tribute to public enterprise that in the majority of instances agreement and coördination were effected between the local authority and the Insurance Committee, but the complexity of the machinery available for this purpose undoubtedly delayed the submission of schemes for the treatment of tuberculosis. The passing of the Ministry of Health Act in 1919, which devolved the provision of sanatorium treatment upon local authorities, was generally welcomed; it put an end to the artificial distinction between the insured and the uninsured tuberculous patient.

The Tuberculosis Scheme.

The complete scheme for the prevention, detection, and treatment of tuberculosis adopted by the Local Government Board was virtually that recommended by the Departmental Committee on Tuberculosis. It was based on the establishment and equipment of two units related to the general public health and medical duties carried on by the medical officers of health working in harmony with the general practitioners. It was laid down by the Local Government Board (circular letter of Dec. 6th, 1912) that the organisation of schemes must be undertaken as part of the public health administration of the area to which they relate with the medical officer of health as the chief administrative and organising officer. The advantages of coördinating the preventive and therapeutic sides of tuberculosis under one administrative head are obvious, and are now generally recognised.

The first unit of the scheme consists of the tuberculosis dispensary or an equivalent staff. The second unit consists of the sanatoria, hospitals, &c., in which institutional treatment is given. The aims of the scheme were thus stated by the Departmental Committee:—

> The Committee are of opinion that the tuberculosis dispensary should be the common centre for the diagnosis and for the organisation of treatment of tuberculosis in each area at which the various bodies and persons connected with the campaign against tuberculosis will be brought together. The aim should be that no single case of tuberculosis should be uncared for in the community, and that whatever services the scheme provides should be available for all cases of the disease. Next to the tuberculosis dispensary should stand the second unit, consisting of a system of sanatoria, hospitals, farm colonies, open-air schools, &c. The tuberculosis dispensary should be linked up to these institutions, for which it will act as a clearing house.

In practice, therefore, a complete scheme approved by the Local Government Board would provide for: (1) the medical officer of health of a county council or county borough as chief administrative officer; (2) tuberculosis medical officers appointed by the local authorities; (3) dispensaries (including a system of health visiting); (4) sanatoria for early cases (5) hospitals for intermediate and advanced cases. In accordance with Section 16 (1) (*b*) of the National Insurance Act, insured persons suffering from tuberculosis might be placed upon domiciliary treatment—that is, they could be treated in their own homes by the panel medical practitioner.

By July 18th, 1914, appreciable progress had been made by local authorities in preparing complete

schemes; 192 clinical tuberculosis officers had been appointed in England. Dispensary premises were established for the most part by the adaptation of an ordinary dwelling-house rented by the local authority. The chief difficulty lay in the provision of residential institutional accommodation. All institutions of repute for the treatment of tuberculosis obtained the temporary approval of the Local Government Board at the outset of the campaign; but the demand for beds far exceeded the supply, and it was soon evident that local authorities either independently or in combination must provide their own residential institutions. Accommodation for early intermediate and advanced cases was sadly lacking; also, as regards provision of beds for children, treatment of surgical tuberculosis, and after-care work, little had been done by 1914. Yet much of the field had been surveyed, plans had been prepared or were in course of preparation, and already the machine of organisation was moving steadily if slowly when its progress was arrested by the outbreak of the war.

Tuberculosis Administration During the War.

The war adversely affected the national campaign against tuberculosis in various ways. Certain county medical officers of health and many tuberculosis medical officers joined the Naval or Army Medical Services. The medical officers who were entrusted with their work could do little more than "carry on" under the existing methods of organisation. War conditions rendered it difficult to keep even a minimum service in being, and still more difficult to make any progress with the development of official schemes. It was necessary to impose restrictions on building except for urgent war work, and in 1915 an embargo was laid on the construction of new sanatoria. These circumstances further enhanced the shortage of residential accommodation for tuberculosis in England, never, as has been mentioned, adequate for the pre-war population, and to add to the difficulties of the position in the closing years of the war there came an overwhelming demand for beds in sanatoria for ex-Service men.

Tuberculosis in the Ex-Service Man.

That military service would heighten the incidence of tuberculosis in the adult male population was foreseen as early as 1915. Unfortunately, owing to the military exigencies of the time, all available energy had to be concentrated on prosecuting the war, or more adequate provision would certainly have been made beforehand. Arrangements were made for sailors and soldiers suffering from tuberculosis to be discharged from the colours and treated under the general tuberculosis scheme; they were to be admitted through insurance committees to approved sanatoria or hospitals, and it was stipulated that they should be given priority over civilians on the waiting lists of these institutions. The cost was borne partly from insurance funds, and partly by the Ministry of Pensions. Subsequently the Ministry of Pensions made themselves responsible for the entire cost of treatment of the tuberculous ex-Service man. This demand for sanatoria beds was associated with appeals for additional residential accommodation for civilians (especially for women). Many local authorities took action, stimulated by a circular on the subject from the Local Government Board, and a considerable number of additional beds were provided. In April, 1918, the number of beds available in voluntary institutions and in sanatoria and hospitals owned by local authorities was 12,441. On April 1st, 1919, the number was 13,523, and on July 1st, 1919, the number was 14,014. Arrangements were also made for the systematic observation of the health of the tuberculous ex-soldier. Periodic visits to the home were made by the health visitor, and the tuberculosis officer, in addition to visiting the home of the patient when necessary, supervised the work of the health visitor and acted on her report. The home visitations were intended to secure as far as practicable that the patient's surroundings, mode of life, and so forth should be as satisfactory as possible, and that prompt arrangements should be made to provide treatment in a residential institution whenever this was considered desirable by the tuberculosis officer.

The Ministry of Health.

The establishment of the Ministry of Health in 1919 had an important influence upon the prevention and treatment of tuberculosis. The new Ministry became heir to the responsibilities and functions previously exercised by the Local Government Board and by the Insurance Commissioners; the Ministry was also placed in close accord with the medical services of the Board of Education, the Chief Medical Officer, Sir George Newman, retaining his previous appointment as Chief Medical Officer of the Board of Education. Again, in the establishment of the Ministry a great stride was taken forward in the coördination of the public health services. For the first time a special medical department of the Ministry solely concerned with tuberculosis was set up, of which Dr. F. J. H. Coutts is the head. This department through the organisation in force is in close association with a number of branches of public medicine and Poor-law administration, formerly in different water-tight departments in Whitehall and now assembled under the Ministry. Tuberculosis is a complex problem, and its study demands the aid and coördination of the various component parts of public health and medicine. Lastly, with the advent of the Ministry of Health central control was at once made more unified and comprehensive in regard to tuberculosis schemes.

THE INTER-DEPARTMENTAL COMMITTEE ON TUBERCULOSIS (SANATORIA FOR SOLDIERS).

This Committee was appointed conjointly by the Minister of Health and the Minister of Pensions in April, 1919, "to consider and report upon the immediate practical steps which should be taken for the provision of residential treatment for discharged soldiers and sailors suffering from tuberculosis, and for their reintroduction into employment, especially on the land." The Committee examined and received memoranda from tuberculosis officers, superintendents of sanatoria, representatives of insurance committees, representatives of public health authorities, persons engaged in the management of tuberculosis colonies, and representatives of discharged service men, and reported in August, 1919.[1] The total number of tuberculous ex-Service men, whether invalided out of the services on account of tuberculosis or afterwards found to be suffering from tuberculosis attributable to or aggravated by conditions of service, amounted to approximately 35,000. Of this number the Committee found that 22,000 had received or were at that time receiving residential treatment which had often been for far too short a period. There were some 4000 men then undergoing residential treatment. The Committee reported favourably upon the establishment of training colonies and of permanent village settlements for ex-Service men. The remaining recommendations dealt with the need for further accommodation for advanced cases, convalescent homes for tuberculous patients (admittedly an institution for a somewhat limited class of case), the reintroduction of tuberculous men into employment, and overseas settlement. The report recognised that the problem of the ex-Service man was equally the problem of the tuberculous civilian. The need for national economy has prevented the financial recommendations of this Committee from being carried out in their entirety. Vocational training sections have been provided at certain sanatoria at the cost of the Government for ex-Service men. The maximum number of places available at one stage was 510. The figures for England at the end of December, 1923, showed that 935 men had been or were undergoing courses of instruction at these centres, and that 71 remained to be instructed. The scheme has now been extended to Wales, Scotland, and Ireland, and ex-Service men for

[1] Report of the Inter-Departmental Committee. London: H.M. Stationery Office. 1919. (Cmd. 317.) 6*d*.

training are being admitted from these countries to the training sections. The scheme will come to an end on Dec. 31st, 1924.

It is interesting to note that the Central Fund for the Industrial Welfare of Tuberculous Persons has embarked upon an experimental scheme for the settlement of a group of men who have received training, but who otherwise would not be able to secure employment owing to their slow rate of production. These men live in their own homes in London and attend at a workshop daily. The ideal aimed at is to enable them ultimately to work at home on orders supplied to them by the Central Trading Organisation; they will then be able to live in the smaller county towns or distant suburbs under favourable conditions; some of them may ultimately develop markets of their own. The scheme may be regarded as an attempt at "graduated settlement."

GROWTH OF TUBERCULOSIS SCHEMES.

At this stage one may pause to note the growth to which tuberculosis schemes have attained in England. A tuberculosis service is being carried out in 442 dispensaries by 349 tuberculosis officers. The number, character, and accommodation of the resdential institutions approved by the Ministry (as at March 31st, 1923) are shown in this table:—

Residential Institutions.

Sanatoria and hospitals.	Number of institutions provided by—		Number of beds provided by—	
	Local authorities.	Voluntary bodies.	Local authorities.	Voluntary bodies.
1. Sanatoria (including consumption hospitals) ..	129	69	8,221	5,075
2. Isolation hospitals (including small-pox hospitals) having beds for tuberculosis	54	—	2,287	—
3. General hospitals	1	127	20	473
4. Children's institutions ..	17	44	998	2,312
	201	240	11,52	7,860
	441		19,386	

MEDICAL PROGRESS IN TUBERCULOSIS.

The tuberculosis scheme, as set out by the State, has many advantages. It is not a rigid scheme, for every local authority within reasonable limits can formulate the scheme most suited for its individual needs; prevention and treatment are linked together; the general practitioner is an integral part of the scheme. The knowledge of an expert consultant in tuberculosis is at the service of every individual suspected to be suffering from or suffering from tuberculosis in the country; in training and industrial colonies and in after-care supervision some, though perhaps not yet sufficient, attention is paid to the important fact that tuberculosis has a social as well as a medical aspect. Furthermore, the scheme is elastic; it should incorporate every advance in treatment of the disease, and such advances have been numerous in recent years. Let me briefly refer to the most important of these advances:—

(1) *Medical Research.*—Under the auspices of the Medical Research Council research work on tuberculosis is established on comprehensive lines, and is closely coördinated with the work of the Ministry of Health. There is a General Committee, a Bacteriological Committee, and a Tuberculin Committee. The latter has been engaged for the past two years in investigating the problem of tuberculin testing in cattle, an inquiry which has an important bearing not only on the purity of the milk-supply, but also bears indirectly on the incidence of bovine tuberculosis in man. The work of other committees of the Council is partly concerned with tuberculosis. Thus, the Industrial Health Statistics Committee pays attention to tuberculosis in industrial occupations; the Light Committee deals with heliotherapy in the treatment of tuberculosis.

(2) *Treatment of Surgical Tuberculosis.*—The treatment of surgical tuberculosis has been revolutionised in our own time by the work of Sir Robert Jones, Sir Henry Gauvain, Mr. G. R. Girdlestone, and others. It is not too much to say that in 20 years' time permanent crippling from tuberculosis will be regarded as a serious reflection on those concerned with the case. As yet, however, the provision for surgical tuberculosis is much too meagre.

(3) *Heliotherapy.*—The work of Rollier at Leysin, the Finsen light, the electric-arc light treatment of Reyn, of Copenhagen, now introduced by Dr. Sequeira at the London Hospital for the treatment of lupus, are all new methods of treatment which are at our disposal, and which are practised in this country.

(4) *Artificial Pneumothorax.*—For selected cases of pulmonary tuberculosis this method of treatment may arrest the disease, or at all events prolong life, and should be practised more frequently than at present. I cannot speak with such eulogy of thoracoplasty, though favourable results are reported in a minority of cases.

(5) *X Rays.*—X rays are being increasingly used in the diagnosis of cases of tuberculosis. They are essential in treatment by artificial pneumothorax, and of value in the differential diagnosis of obscure pulmonary conditions. In treatment for lupus or for tuberculous glands the results are disappointing, and the risk of carcinoma supervening in scarred tissue after prolonged treatment must be remembered.

(6) *Sera and Vaccines.*—Ever since the announcement by Koch of the preparation of tuberculin, hopes have been aroused that the discovery of an effective serum or vaccine might solve the problem of the treatment of tuberculosis. There is undoubted evidence that tuberculin in certain cases did promote arrest of the disease, but the risks undoubtedly outweigh the precarious advantages. Good results seem to have been obtained by the late Dr. Arthur Latham and by Dr. E. H. Colbeck in cases of pulmonary tuberculosis treated by Mr. H. Spahlinger's complete serum and vaccine. Unfortunately, the supply has been exhausted, and hitherto Mr. Spahlinger has not been in a position to furnish the Ministry of Health with supplies of his preparations for the purpose of a scientific clinical test. More recently still Prof. G. Dreyer has prepared "diaplyte" (*B. tuberculosis*) vaccine. This vaccine is being tested under the auspices of the Medical Research Council at several centres in Great Britain. It is too early to express an opinion as to its value in treatment, but certain of the results so far obtained are encouraging.

My purpose in alluding to medical progress in tuberculosis is to emphasise that the State is kept dully cognisant of the advances made, and is prepared to assist local authorities in putting them at the service of the community, subject, of course, to necessary financial restrictions, as soon as they are justified of medical science.

CARE COMMITTEES.

One important recommendation of the Inter-Departmental Committee on tuberculosis was that care committees should be established as an integral part of tuberculosis schemes. Unfortunately, this recommendation has not been carried out in a large number of areas. Tuberculosis is a disease bred of poverty, and in turn causing poverty. The vicious circle can be broken by appropriate medical treatment on the one hand, and by suitable sociological action on the other. The development of care work is greatly to be desired, as Dr. F. J. H. Coutts pointed out in his paper at the annual meeting of the National Association for the Prevention of Tuberculosis in July, 1923. We all recognise that the difficulties are great—e.g., dearth of skilled workers, the complex nature of the problem, and lack of local social organisations. So far as ex-Service men are concerned the British Red Cross Emergency Help Committee and the United Services Fund give valuable help; in all areas it is

desirable that their work should be coördinated with that of care committees for the tuberculous.

TRAINING COLONIES AND VILLAGE SETTLEMENTS.

This brings me to the subject of the industrial colony and village settlement, one of the most important advances in the treatment of tuberculosis, and one which the State has encouraged by financial subsidies and support. From what has been said, it will be realised that treatment of the tuberculous patient in a sanatorium under the national scheme has merely had a limited period of effective trial and in many areas only since the termination of the war. Sanatorium treatment cannot and should not be regarded as a failure. When suitable cases were selected, the method often affected partial or complete arrest of the disease. Where failure occurred it was mainly though not exclusively in the sequel of sanatorium treatment. The sanatorium patient with a recently healed lesion often went back to a pernicious environment, or was subject to the stresses of competition with healthy labour. But his is a damaged life; he cannot compete in the open labour market; his physique will not permit him to stand the strain of modern industrial life. His earning capacity declines; if the after-care committee is non-existent in his area or unable to find him a light occupation in which he can obtain a living wage he descends in the economic scale.

This sociological side of tuberculosis had engaged attention at an early stage of sanatorium treatment in this country. In some sanatoria efforts were made to prolong the period of treatment by finding suitable work for a limited number of ex-patients for a time at the institution, and by affording some degree of training in suitable occupations. Colonies represent the development of this work. It is admitted that the ideal is to treat and train the consumptive at a residential institution, and afterwards to establish him in a village settlement with his wife and family, where he can carry out his work under medical supervision and under the healthiest possible conditions. One school of thought affirms that this ideal can be attained by restricting the provision of training and occupation for consumptives to established residential institutions. It is held, then, that economic pressure will drive the consumptive worker and his family into the village settlement and industrial centre. Financial exigencies alone, however, seem to forbid the establishment of enough industrial colonies and village settlements to provide for all the consumptive workers in the country. The other school considers it desirable to make provision for industrial training and employment centres in large urban districts, such as the centre in Leeds. The patients in such centres will work on similar lines to those pursued in residential training centres; their work will be graded, they will be under the medical supervision of the tuberculosis officer, and receive financial assistance for themselves and their dependents by their labour being subsidised as in the industrial colony. In the event of a recrudescence of tuberculosis or of a slight breakdown in health they will be admitted to a local hospital for prompt treatment.

Experiments of this character are being watched by the Ministry of Health with the closest attention. They strive to offer a solution to the combined medical and sociological problems of tuberculosis. The answer may come by various roads; when it is attained local authorities should not be slow to recognise it as the crown of a tuberculosis scheme.

CONCLUSION.

In this brief sketch of tuberculosis work in England I have endeavoured to trace the steps by which isolated and voluntary measures culminated in the intervention of the State with a comprehensive and coördinated plan of organisation.

Such a scheme is of necessity costly. The total public expenditure by the Exchequer and local authorities upon tuberculosis schemes is more than 2½ millions annually.

As to the value and effect of general public health measures and special anti-tuberculosis work on the declining mortality-rate from tuberculosis we may consult the mass of valuable statistical information on the subject which is given in the supplement to the Seventy-fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England and Wales, Part III., Registration Summary Tables (1901–10), 1919 (Cd. 8002): "The deaths assigned to tuberculous affections in the aggregate for the period 1901–10 numbered 565,161, being fewer by 50,845 than the number in the preceding decennium. Corrected for estimated increase of population the difference becomes 121,941. The statement of the number of lives saved is further increased when allowance is made for the fact that the constitution of the population in 1901–10 was more favourable to tubercle mortality than was that of the population in 1891–1900 The standardised death-rate in 1901–10 was 1646 per million living, showing a reduction of 18·6 per cent. from the corresponding rate in the preceding decennium. On this basis the reduction in the number of deaths from what might have been expected if no further fall in mortality had occurred amounts to 128,758."

During the interval of 50 years preceding 1910 mortality from tuberculosis has been nearly halved among males and more than halved among females. The period, 1860–1910, of lowered mortality from tuberculosis is associated with a certain degree of institutional segregation of the consumptive, and with education of the consumptive in measures of precaution against dissemination of the disease. The foundation-stones of a campaign against tuberculosis were being laid, and measures of this kind had a certain share at all events in effecting a reduction in incidence of the disease. Again, the same period embraces wide measures of public health and social reform. Better sanitation, better housing, higher wages, more abundant food supply, cheaper bread, better industrial conditions, and coördinated public health measures prevailed. To this realisation of the responsibilities of the community towards improving the standard of health in general, and towards the care of tuberculous persons, may fairly be ascribed the remarkable fall in the death-rate witnessed in the latter part of the nineteenth and first decade of the present century.

The standardised death-rates per million living from 1910 onwards, with the exception of the transient rise in tuberculosis mortality due to war conditions in the years 1914 to 1918, show a further progressive diminution in the mortality from tuberculosis of the respiratory system, as demonstrated in the following table:—

Year.	Males.	Females.	Persons	Year.	Males.	Females.	Persons
1910	1145	841	988	1917	1860	949	1384
1911	1206	883	1035	1918	2052	1037	1522
1912	1169	837	993	1919	1097	824	953
1913	1133	807	961	1920	966	733	843
1914	1164	839	992	1921	965	754	854
1915	1452	887	1155	1922	982	741	855
1916	1600	893	1230				

Let us glance again at the decline in respiratory tuberculosis. In 1847 the death-rate was 3189 per million, and in 1922 it was 855. In the Registrar-General's Report (1920), Dr. Stevenson, speaking of the mortality of tuberculosis, says:—

> "In the past two years this rate has fallen more rapidly than in any previous similar period of which we have record . . . . It is to this continued increase in the relative rate of fall that we must look for evidence of the effect of the anti-tuberculosis measures of recent years."

We may not see the day when tuberculosis is as rare in England as leprosy, but we can look forward to its ultimate attainment with some degree of hope. And, as Robert Louis Stevenson tells us in "Virginibus Puerisque": "To travel hopefully is a better thing than to arrive."

THE "SELF-DEFENSIVE REACTION" IN THE TREATMENT OF MALARIA.

BY IVAN I. MANOUKHIN, M.D.

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THE therapeutics of infectious disease have been based, up to the present time, on the three following principles: (1) Active immunisation, introduced by Pasteur; (2) passive immunisation, first elaborated by Behring, Kitasato, Wernicke (Koch's laboratory), and Roux (Pasteur's laboratory); and (3) hæmotherapy, elaborated by Ehrlich.

The three first fundamental principles were shown by practice to be insufficient for the treatment of infectious diseases, for the following reasons: (*a*) active immunisation gives brilliant results when used chiefly for preventive purposes, as intended by Pasteur; (*b*) passive immunisation gives results only in toxic infections, its use being greatly limited by the phenomena of serum anaphylaxis; (*c*) hæmotherapy cannot be applied with certainty to most infectious diseases, especially to their bacterial forms. The necessity of finding new methods whereby the therapeutics of infectious diseases may be rescued from this unprofitable situation has therefore become urgent.

Among these methods is my own artificial stimulation of the self-defensive power of the organism, which reacts according to laws formulated by myself.[1 2] To this new principle of the therapeutics of infectious diseases I gave the name of the phenomenon upon which it is based—i.e., the "self-defensive struggle." Founded on the general law which governs the struggle of the organism against infection, this method exercises a curative action in widely different infectious diseases. Investigations carried out with the collaboration of Drs. S. Maximadji, W. Malichewsky, M. Markewitch, A. Mouratova-Koudria, Y. Sokolova, and W. Warawka have confirmed my statements concerning the value of the method; the latter curtails the evolution of lobar pneumonia and of recurrent typhus, shortens the duration of catarrhal pneumonia, and is applied with considerable success in the treatment of tuberculosis in its different localisations.[3 4 5 6 7 8 9 10] Similar success is obtained in cases of typhoid, dysentery, tetanus, &c.; these last-named infections necessitated further development of my method.[5] Consequently the "self-defensive" treatment of malaria, as I have already shown,[4 6] is only a particular instance of the application of the method.

History of the Treatment.

When medicine was enriched by the theory of the organs of internal secretion, owing to the work of Brown-Séquard and Pavlov, it became evident that the activity of the chief physiological apparatus is determined by the secretion of internal organs constituting it. Consequently, the study of the conjugated action of the different hæmopoietic organs during the self-defensive struggle of the organism against infection should be regarded in the same light.

This orientation permitted me to discover the specific ferments which produce in the blood the sequence of the phenomena comprising the self-defensive struggle of the leucocytes. The phenomena of the leucocytic reaction were definitively described by the pupils of A. Schmidt: Hoffmann,[11] Samson-Himmelstierna,[12] Heyl,[13] Groth,[14] and later on by Tchistovitch,[15] S. S. Botkine,[16 17] Rieder,[18] Löwit,[19] Wassermann,[20] and others. The hæmoleucocytic reaction consists of a succession of two processes of hypoleucocytosis, primary and secondary, separated by a process of hyperleucocytosis.[21]

Leucocytolysins and Antileucocytolysins.—My experiments showed me that the appearance of primary and secondary hypoleucocytosis in human or animal blood infected by pathogenic agents, is subordinated to the presence in the blood of ferments which condition the massive destruction of leucocytes—i.e., which constitute the phenomenon of "leucocytolysis." These ferments I have called "leucocytolysins"; they are elaborated in the spleen. The hyperleucocytosis is determined by the presence in the blood of ferments checking the destruction of white blood corpuscles, which I have called "antileucocytolysins"[1 22 23]; the latter are elaborated in the liver.[24 25 26 2]

Rôle of the Spleen.—The spleen directs all the phenomena of the self-defensive struggle of the organism. The leucocytolysins do not confine themselves to the production of hypoleucocytosis; they also stimulate the leucopoietic activity of bone-marrow, as well as the antileucocytolytic activity of the liver,[2 4] which phenomena make hyperleucocytosis possible.

Means of Stimulation of Leucocytolytic Function of the Spleen.—When I had determined the function of ferments necessary to the hæmoleucocytolytic reaction, the next problem was to find a means of artificial activation of the leucocytolytic function of spleen cells. I was able to fix the precise dose of X rays, the conditions of obtaining them, and the frequency of application, in order to get a stimulating effect only.[1 24 4 26] Experiments with a strictly determined dose of X rays applied to the spleen of animals gave me a profound conviction that the phenomena of stimulated self-defensive artificial reaction produced in the blood of animals an accumulation of alexine, hæmolysins, agglutinins, bacteriolysins, and opsonins.[27 2]

Treatment by Radiation of the Spleen of Animals Infected with Different Pathogenic Agents.—Under the influence of the treatment by "the self-defensive struggle" animals are cured of different infections transmitted to them. Thus it was observed in (*a*) Tuberculosis of monkeys and guinea-pigs,[28] (*b*) pneumonia of dogs, infected by the diplococcus of Fränkel, and (*c*) "Spanish" influenza of guinea-pigs infected with the *Diplobacillus morbi hispanici*, a diplococcus discovered by me in collaboration with Y. Sokolova.[29]

Leucocytolysis as Basis of Self-defensive Reaction

The constant and durable results obtained in all my experiments concerning the struggle of the organism against infection and against its toxins permitted me in 1911 to formulate the following assertion: "Biology, with all the sciences which accompany it, and medicine in particular, must henceforward modify the theory of phagocytosis by the theory of leucocytolysis and phagocytosis."[1] The immense amount of material which I have since observed now permits me to extend my generalisation as follows: "Biology must henceforward recognise that the premier rôle in the defensive struggle of the organism against infection and its toxins is that of leucocytolysis, and no longer that of phagocytosis. Phagocytosis never comes into play unless the microbes are greatly weakened and their toxins neutralised by the preceding phenomenon of leucocytolysis." The discovery of this law provided me with a link between the conception of the important rôle of the leucocytes in the leucocytic defensive reaction, and the humoral theories of immunity.

The Self-Defensive Struggle in Malaria.

I shall try to prove that the above biological law appears at the basis of the self-defensive struggle of the organism against Laveran's parasite, which constitutes a particular instance of the general self-defensive reaction. The characteristics of the leucocytic formula in malaria are as follows:—

1. *Hypoleucocytosis* (Kelsch,[30] Halla,[31] Pée,[32] Bastianelli,[33] Vincent,[34] &c.).—This process takes place chiefly at the cost of polynuclears (their number, according to Bezançon and Labbé,[35] falling to 40 and even to 20 per cent.), and is observed at the period of apyrexia; its minimum (up to 3000 and even 1000) appears at the beginning of the chill which accompanies the attack—that is to say, at the moment when "the "hæmatozoars, having reached their maximum development, are about to reproduce themselves by

endogenic and asexual means and present themselves in the form of 'corps en rosace'" (Billet [36]).

2. *Hyperleucocytosis* (Führmann,[37] Boeckmann,[38] Vincent,[34] &c.).—This also takes place at the expense of polynuclears (Türck,[39] Poech,[40] &c.). It begins during the chill period, immediately after the most characteristic phase of hypoleucocytosis, and reaches its maximum at the moment when "the hæmatozoars spread in the serum in the form of small amœboid bodies, in order to infect new corpuscles" (Billet [36]). According to Billet it reaches 12–20 thousand (exceptionally 25–30 thousand), continues during the whole period of fever, and ceases with the appearance of sweating, being then transformed into hypoleucocytosis, always shortly before the fall of the temperature. In that way the general characteristics of the leucocytic curve in malaria are the same as those found in all the cases of self-defence of the organism against infection; that is to say, the curve consists of alternative periods of hypo- and hyper-leucocytolysis. The only particular characteristic of the evolution of self-defence against Laveran's parasite is found in the prolongation of the periods of hypoleucocytosis at the cost of the periods of hyperleucocytosis; the latter, according to Vincent and Rieux,[41] are sustained for a few moments only in malaria.

3. *Lymphocytosis* (Bastianelli,[33] Vincent,[34] Türck,[39] Billet,[36] &c.) and *Mononucleosis* (Billet,[36] Stephen and Christophers,[42] Rogers,[43] Poech,[40] Delany,[44] &c.).—The lymphocytosis is the result of the massive diminution of the number of polynuclears; that is why, according to Vincent and Rieux,[41] the lymphocytosis particularly "characterises the interval between pyretic attacks," during which it often reaches 40, 50, and even 70 per cent. The mononucleosis is provoked not only by the diminution of polynuclears, but also by the checking action of thyroid secretion.[23] This is the reason why mononucleosis becomes a characteristic of the blood in exophthalmic goitre. With malaria, having another origin than of lymphocytosis, it is observed during the febrile periods (5–10 per cent., according to Billet [36]), as well as during the apyrexial periods which separate them (according to Billet it then reaches 25–30 per cent.).

4. *"Forms of Dissolution" of the White Corpuscles.*—These forms were first described in malaria by Petroff,[45] who commented on their high percentage from 22–33 per cent. in different forms of malaria). (This fact is of very great importance, considering that it shows us that the hæmoreaction of the human organism in its struggle with the malarial parasite is characterised by an enormous destruction of white corpuscles." Nevertheless, it must not be forgotten that the presence of the "forms of dissolution," according to the experiences of their discoverer himself (E. S. Botkine [46]), is by no means a certain indication of a disaggregation of leucocytes taking place in the blood at the moment. This question can only be solved by determination of the presence of leucocytolysins in the blood.

5. *Leucocytolysins and Antileucocytolysins.*—Since 1906 I have experimented with the leucocytolytic properties of the blood of patients suffering from different forms of malaria. These patients were under a treatment at the therapeutic clinic of the Medical Military Academy of Petrograd, at Mary's Hospital at Petrograd, and, during the war, at a Red Cross hospital under my direction, which hospital was reserved for soldiers evacuated from the front with infectious diseases. Having experimented on the blood of 47 patients, I succeeded in showing that the hypoleucocytosis in malaria really took place exclusively because of massive destruction of leucocytes in the blood. Consequently the hæmoreaction in malaria is subordinated to the general law of all infections, the law of the self-defensive reaction, based on leucocytolysis.

My observations have thus shown that the presence of leucocytolysins can be brought to light in malaria at the moment of the thermometric fall, in the period of apyrexia, during the period of hypoleucocytosis, primary and secondary; but their maximum accumulation can be established immediately before the rise of temperature, and immediately after its fall. At the moment of hyperleucocytosis in the blood, the presence of antileucocytolysins is observed; the substitution of the antileucocytolysins by the leucocytolysins always slightly precedes the beginning of the fall in temperature (see charts).

6. *Eosinophils.*—Authors (beginning as far back as Grawitz [47]) differ concerning the variations of the number of eosinophils and their significance in malaria. Of late, however, most authors agree that the quantity of eosinophils in malaria is infinitesimal, that frequently they are not to be found at all (because of the intense leucocytolysis), and that their percentage augments only when the patient is on his way to recovery; I found the same phenomena in all my patients.

7. *Irritation Cells of Türck.*—These, according to Vincent and Rieux,[41] are often to be observed in malaria in the period of apyrexia and generally in the proportion of 1 and 2 per 100 leucocytes.

8. *Myelocytes.*—In malaria a slight myelocytic reaction (Rogers,[48] &c.) is frequently remarked. According to S. S. Botkine,[49] the apparition of myelocytes is a sign of exhaustion of hæmopoietic organs, which furnish a great number of new cells in order to replace the great destruction of leucocytes continually taking place in the blood.

We have thus come to the following conception: All the particular characteristics of hæmoreaction in malaria—that is to say, hypoleucocytosis, diminution of polynuclears, lymphocytosis, "forms of dissolution," partial mononucleosis, diminution of eosinophils, and a slight myelocytic reaction—are produced by the leucocytolysis; in other words, leucocytolysis is itself the cause of the self-defensive reaction of the organism in its struggle with Laveran's parasite.

The Rôle of the Spleen in Malaria: Method of Self-defensive Treatment.

The increased production of leucocytolysins necessary to the leucocytolysis is regularly accompanied in malaria by a marked enlargement of the spleen volume. "The diminution of white corpuscles and the swelling of the spleen," as Kelsch [30] has written, "are two parallel facts in malaria." The enlargement of the spleen undoubtedly shows that the activity of this organ is insufficient for the requirements of the organism as a whole when the latter is attacked by Laveran's parasite. The radical treatment of malaria should realise an artificial activation of the function of the spleen cell, until that function fulfils the needs of the organism with regard to leucocytolysis.

The aim of my method of self-defensive treatment being the activation of the leucocytolytic rôle of the spleen, in malaria I use a dose of X rays equal to 1 h. (Holzknecht unit), as measured by the Sabouraud and Noiré radiometer; the rays are filtered through 1 mm. of aluminium, and the Holzknecht scale is used. I employ this dose for five minutes at 1 milliampere, with X rays (hardness, 8 on the Benoist radiochromometer, 15 cm. on the spintometer), with the anticathode at a distance of 25 cm. from the surface of the body.

Liver and spleen being, as we have seen, antagonistic, great care must be taken in order that during radiation of the spleen the rays should not reach the liver; radiation of the spleen should be made either from front or back, but not from the side. When the tube (8 cm. diameter for adults), whose sides are impermeable by X rays, is being placed in position, care should always be taken that the rays do not reach the left lobe of the liver. The limits of the position of the tube are at the front the left mammary line, at the back the left scapular line; the lower limit is always the lower edge of the thoracic cavity. Experience has shown me that the frequency of spleen radiations in *acute malaria* should be regulated according to the form of disease present. In quotidian fever a radiation should be given every day with interruption for five or seven days if reduction of temperature has not begun after the tenth application. In tertian and quartan fever the radiations should be made on the eve of the attack.

In *chronic malaria* spleen radiations should be applied every two, three, or five days, according to the facts of the individual case. If one series of 15 radiations is insufficient for the establishment of a complete cure the patient should be rested for a month, and treatment then recommenced, again not exceeding the number of 15 radiations. In very refractory cases a third series of radiations of the spleen should be given after another month's rest.

Methods of Manoukhin and Senn Compared.—My method of radiation of the spleen differs completely from the method widely employed since its institution by Senn. Senn introduced the use of large doses of X rays; I employ very small doses. Heavy doses have the effect of destroying the treated cells; I propose simply to stimulate the function of the spleen cells without injuring their vitality. Senn's method is concentrated upon local effect, whereas I try to obtain a general action—just as Behring, Kitasato, Wernicke, and Roux, in place of local therapeutics of diphtheria and tetanus, introduced the treatment by passive immunity of the injured organism. I have replaced local X ray treatment by stimulation of the active immunity provoked by the influence of rays on the organ which directs the defence of the whole organism against infection. By the by, I believe that Fontoynon [50] has misunderstood my method if, having identified my conception with that of Senn, "he has never seen radiotherapy alone acting in malaria."

Clinical Evolution of Malaria under the Influence of Self-defensive Treatment.

I began to apply my treatment in 1914, at Kiev, where my hospital patients included none but severe cases of malaria.

Controls.—I compared my results with those of an adjacent hospital (Hospital No. 19), where comparable cases were treated almost exclusively with quinine (after trials of arsenical preparations which were found to be less trustworthy and less stable). In a very small number of cases I was able to compare my results with those obtained by neosalvarsan treatment.

Statistics.—My figures obtained at this hospital relate to 61 cases, comprising 23 tertian, 10 quartan, 11 simple tropical malaria (*Plasmodium præcox*); 4 mixed tropical malaria (*P. præcox* + *P. vivax*); 2 pernicious malaria of a comatose and delirious form (*P. præcox*); and 11 cases where the parasite could not be identified in the peripheral circulation, and where the condition was either characterised by an irregular temperature or appeared in the form of quotidian fever. Later I was able to practise my method of treatment with the same technique at Petrograd, where I had 24 patients with chronic malaria. (I have excluded from these statistics 13 cases of acute malaria, with parasites identified in the blood, which came into my hospital by chance, and not by way of the Front. They recovered in 1–2 days after the beginning of treatment; I do not wish to base any conclusion on such favourable cases.) All the malaria patients treated by me at Kiev were definitely cured. Out of 24 patients treated in Petrograd (most of them coming from the Caucasus) I obtained a complete cure in 22 cases; 9 of these required two or three series of spleen radiations. In two cases where the spleen was voluminous and very much indurated I was obliged to stop the treatment after several trial radiations; the splenic tissue, having undergone too great a fibrous degeneration, no longer reacted to excitation, and the production of leucocytolysins was nil. After this experience I was astonished at the unexpected conclusion drawn by Tanon, Gastou, and Segal at the time of my communication in December, 1922.[50] They believed that my treatment was "especially indicated in cases where chronic alterations of liver and spleen are present." I have just shown that chronic alterations of the spleen constitute a considerable obstacle to the success of my treatment, necessitating a much longer time and, in exceptionally severe chronic cases, rendering treatment inactive. Normal function of the splenic cell is thus absolutely necessary for my treatment.

Fall of Temperature.—The influence of X rays on the spleen most frequently began to appear in the temperature only after the eighth to tenth radiation, as the cases were severe. These 8 or 10 radiations—and sometimes even 3 to 5 radiations—were sufficient to reduce the temperature to normal. In some cases 10 to 15 applications were needed, but I have never had to go beyond 20 to overcome the most recalcitrant cases of quartan and tropical fever. The method of fall of temperature in my cases of acute malaria differed widely; sometimes the fall was abrupt, sometimes the pyrexial periods diminished progressively and the temperature fell by lysis. In certain cases, before the definite fall, tertian or quartan fever was transformed into quotidian fever; the temperature then fell at once, abruptly or with several oscillations.

The four charts (Figs. 1, 2, 3, 4) show axillary temperatures of soldiers treated and cured by me at the Kiev Hospital.

FIG. 1. FIG. 2.

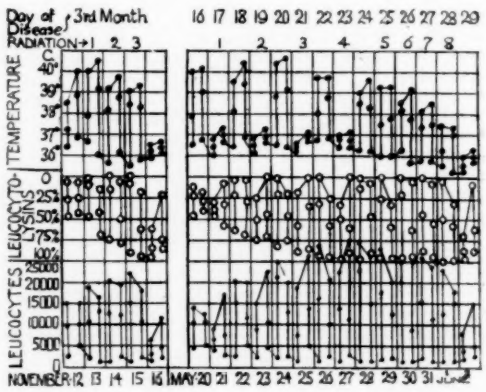


FIG. 1.—Patient, aged 22, treated in November, 1914; *P. vivax* identified; quotidian fever; the temperature fell abruptly and finally after the third application of rays.

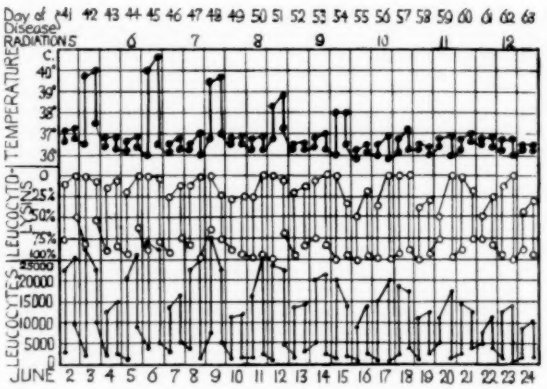
FIG. 2.—Patient, aged 25 years, treated in May, 1915; tertian fever; *P. vivax* identified; temperature fell by lysis after eight radiations; tertian form transformed into quotidian form.

The charts show that identification of the parasite does not make it possible to foresee the number of radiations of the spleen which will be necessary. Thus, six radiations were required for the treatment of a mixed form of malaria due to *P. præcox* + *P. vivax* (Fig. 4), whereas 8 and 3 radiations were needed respectively for two cases (Figs. 1 and 2) determined by *P. vivax* alone. Nevertheless, experience has shown me an incontestable sign on which prognosis can be based. When tertian or quartan fever is transformed into quotidian fever, it can be stated that the disease is giving way to treatment, and that the fall of temperature to normal is imminent. It is equally impossible to foresee by means of the temperature curve whether the latter will fall abruptly or by lysis. The rapidity of this fall to normal in acute malaria treated by radiation of the spleen depends entirely on the patient, whose physical resistance and psychical state play a preponderating part in the matter. At the Kiev Hospital the patients who required longest treatment were prisoners of war, psychically depressed, and soldiers exhausted by enormous marches and insufficient nourishment.

Disappearance of Clinical Symptoms.—The liver and spleen diminished in volume with the fall of temperature and, in acute cases, resumed their customary dimensions either at the time when the temperature has reached the normal, or else in the following eight days. In malaria accompanied by icterus the latter disappears with the fall of the temperature.

The patient's weight goes up. The disappearance of parasites in the blood is accompanied by a rapid increase of the quantity of hæmoglobin. The red corpuscles also take on their normal aspect and their number shortly reaches the usual figure. The explanation is as follows: I was able to establish the fact that

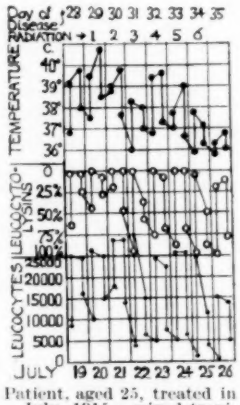
FIG. 3.



Patient, aged 24, treated in June, 1915; quartan fever; *P. quartanum* identified; the temperature fell by lysis after 12 radiations.

radiation of the spleen provokes an increase of red corpuscles and of hæmoglobin in the blood. Recent communications of Béclère [51] and Vaquez [52] confirm the observation that spleen radiation with small doses of X rays leads to an increase of red corpuscles in blood. It is of importance to remember this detail of the action of X rays upon the spleen, for in no case should treatment be stopped before the hæmatological formula has returned to normal. Thus I follow this rule: About 15 days after the last radiation, if blood examination shows that the quantity of hæmoglobin and the number of red corpuscles are not yet normal, another few supplementary radiations should be practised under the control of frequent hæmatological examinations. This eventuality does not often arise after 15 days; the blood formula of the patient cured of acute malaria is usually normal. If supplementary radiations are necessary they should be made every 5–6 days.

FIG. 4.



Patient, aged 25, treated in July, 1915; mixed tropical malaria; *P. præcox* + *P. vivax* identified; irregular intermittent fever; temperature fell definitely after sixth radiation.

Advantages of Self-defensive Treatment.

From a comparison of results obtained at Kieff by the self-defensive treatment and by quinine, in the two hospitals before alluded to (my own and No. 19) I drew the following conclusions: 1. No. 19 hospital, where quinine was used, had deaths to report, whereas my hospital had none. 2. The benign clinical evolution of malaria in the patients submitted to the spleen radiation was striking, their general condition improving after a few applications of the rays. 3. The duration of the disease was shortened on an average to nearly a third of the duration observed with quinine treatment. 4. No. 19 hospital contained some more or less pronounced quinine-resistant forms of malaria; patients who left my hospital all showed a definitive return to the normal conditions of the blood. 5. Several relapses were observed in quinine cases, even before the patients had left hospital; I was fortunate in being able to keep in my hospital all patients who had undergone my treatment for at least a month after their recovery. It was also possible to examine about 50 per cent. of my patients a year and two years after the end of their treatment; in none of the 50 per cent. could any return of malaria be found or reported. 6. Finally, in self-defensive treatment we have a powerful expedient in cases of quinine idiosyncrasy. I was able to report to the Société de Médecine et d'Hygiène Tropicales de Paris a case of this idiosyncrasy cured by self-defensive treatment.[59] Comparison of the results of my method with those obtained in the few available cases treated by neosalvarsan gave still more strikingly in favour of the former.

Regular Reproduction of the Hæmoleucocytolytic Reaction by Self-Defensive Treatment.

The constancy of positive results obtained by self-defensive treatment can only exist on condition that this treatment reproduces exactly the phenomena of the defence of the attacked organism.

A distinguished Russian clinician and therapeutist, S. P. Botkine,[53] used frequently to state that "The faculty of cutting down, of aborting the morbid state exists in the human organism itself; the problem is to track it down and render more efficacious the means which the organism uses for getting rid of the infection. It seems to me that in the study of these natural abortive forms, in the knowledge of procedures utilised by the morbid organism we shall find means of aborting disease." The laboratory and the clinic have definitely established my conviction that leucocytolysis appears to be the process utilised by the organism to free itself from any infection; I propose artificially to provoke the process by means of a new principle of treatment, by "the self-defensive struggle," which I have instituted and have here described.

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(*Continued at foot of next page.*)

REMARKS ON THE PATHOGENICITY OF COMMON INTESTINAL WORMS.

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NO ONE will deny that parasitic worms play a definite and far from unimportant rôle as pathogenic agents, but for some inexplicable reason they are generally regarded as the special concern of the *tropical* pathologist. The suggestion that the commoner helminths have any part in the causation of diseases occurring in this country appears to arouse in certain quarters considerable opposition, and in view of this it is not surprising that helminthology, as a branch of medical and veterinary science, has received comparatively scant attention and encouragement. It is, therefore, the more remarkable that anyone here should have attained eminence in this particular subject. As it happens, comparatively few have.

It is not particularly easy to account for this peculiar circumstance. Parasitic worms are admittedly common enough even amongst the apparently healthy, and, moreover, more or less sound teaching with regard to them finds a place in the best text-books of pathology published in this country, though it is perhaps doubtful if it occupies a proportionate amount of time in the class-room, the teaching laboratory, and the clinic. As a result one cannot avoid the conclusion that diseases due to helminths are not, as a rule, recognised. The remarkable and exceptional cases which have been recorded from time to time bear witness to this supposition.

It would be unreasonable to expect the busy general practitioner to devote the time necessary to establish in every case a diagnosis of intestinal helminthiasis. In many cases of oxyuriasis, of course, a reliable diagnosis can be based on a few well-known symptoms. In most cases of ascariasis and trichocephaliasis, however, the symptoms are either obscure or so pleomorphic that quite a variety of different diseases, not necessarily intestinal, may be simulated. In illustration of this, such cases as those reported by Jamieson and Lauder (1910) and Kahane (1907) are of interest. Moreover, the literature on the subject is so scattered that an altogether unreasonable amount of time is usually wasted in ascertaining its existence and in collating the various items. On that account it would seem that some useful purpose might be served by presenting these items in an accessible form. An equally desirable object would be attained in drawing attention to the fact that a fairly comprehensive literature on the subject does actually exist and that it deals with many varied aspects. As to the precise value of this literature doubts may justly be entertained in particular instances.

In this connexion the bibliographical work of J. C. Huber[1] served a very useful purpose. It has, however, been merged in the much more comprehensive and voluminous "Index Catalogue of Medical and Veterinary Zoology."[2] Amongst the more useful bibliographies of subsequent date are those of G. Railliet[3] and Leiper.[4]

The Conclusions of Railliet.

To my mind the most important and unprejudiced opinions which have hitherto been published on the subject are those of Railliet, who, it should be noted, is a clinician and not a helminthologist. These opinions, though not immune to criticism, are eminently reasonable and free from bias. As the volume in which they were published is rare, I take the liberty, with the author's permission, of presenting here a translation of his principal conclusions, which are as follows:—

Intestinal worms are, in general, more frequent in infants than in adults; ankylostoma, however, is rare, and bothriocephalus exceptional in infants. The frequency of the different species varies according to the country. In Paris trichocephalus is very frequent, oxyuris little less common, and ascaris rarer. The last is more widely distributed in rural districts.

In former times nervous disturbances were those most frequently noticed because they are most striking. They have been described as sympathetic or reflex, but they ought really to be regarded as toxic, infectious, or toxi-infectious. They occur almost exclusively in predisposed subjects of a neuropathic disposition. At the same time, the influence of coexisting digestive troubles must not be ignored. These multiple factors make it difficult to determine exactly the part attributable to helminths in the production of these ill-effects. Nevertheless it is certain that helminths are the occasional, if not actually determining, causes of convulsions and of various obscure troubles classed under the term "neuroses," of which the number is constantly diminishing. The reality of verminous pseudo-meningitis, in particular, is proved by lumbar puncture. This is of differential importance, as the prognosis in such cases is, of course, favourable. There also occur ocular troubles of such importance as to demand cognisance on the part of ophthalmologists.

The study of cutaneous disorders, apparently neglected by dermatologists, opens a field for much interesting research. Amongst the local disturbances the peri-anal lesions of oxyuris will certainly be found to be more frequent than would appear. The ætiology of pruritus ani is not well known. Moreover, the subject of erythema is one on which a chapter remains to be written.

Accidents of a surgical nature, due almost entirely to ascaris, are of varied interest. Intestinal perforation is theoretically possible, but no observation has so far been absolutely convincing. The occurrence of primary verminous abscesses is not proved beyond question. Except in the unusual case reported by Fröhlich (oxyuris), the cases deal in reality with peritoneal collections in direct communication with the lumen of the intestine. The occurrence of intestinal obstruction, however, is quite beyond question and is of great medical and surgical interest. Tumours, due to clumps of ascarids in the intestine may give rise to errors of diagnosis.

Worms, generally oxyuris, are frequent in the appendix of children, but they appear to be as frequent in normal as in affected appendices. Both oxyuris and trichocephalus frequently occur in the wall of

(*Continued from previous page.*)

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the normal appendix, and may thus inoculate bacteria into the wall. The possibility of helminthic appendicitis is therefore real; only its frequency is in doubt. Anthelminthic treatment has been found of no avail for worms in the appendix, and, indeed, its employment may be actually dangerous in cases of acute appendicitis. Two points must be noted—namely, that the presence of worms in a case of appendicitis constitutes a possible source of aggravation, and that ascarids sometimes give rise to symptoms simulating appendicitis (pseudo-appendicitis).

Gastro-intestinal disturbances are usual in helminthic infections, and may simulate a variety of diseases such as muco-membranous enteritis, dysentery, cholera, &c. Trichocephalus enteritis, however, does not appear to present a sufficiently clear-cut picture to be classed as a definite morbid entity. Intestinal worms may cause fever. Transient febrile states are frequent enough, but the question of helminths as inoculating agents of typhoid fever remains sub judice.

The existence of helminthic anæmias is now generally admitted. Trichocephalus and ankylostoma may cause severe, even fatal, anæmia; but only bothriocephalus anæmia presents the characters of a pernicious anæmia. Intestinal worms not infrequently migrate, especially into the bile-duct and pancreatic duct; or into the respiratory passages, where they may cause fatal asphyxia.

In certain cases helminths appear to have caused sudden death, and have thus become of medico-legal interest.

In summing up, Railliet suggests that, while avoiding the exaggerated misconceptions of the past, it appears advisable to constantly bear in mind the possibility of untoward contingencies due to parasitic intestinal worms. In the case of obscure children's ailments every practitioner ought to put the question to himself, "Has the child worms, and, if so, what kind?" In any case of doubt, where no contra-indication exists, a vermifuge might with advantage be administered.

Notes Based on Personal Experience.

Little comment on the foregoing is necessary, but the following notes, based on personal experience, may not be out of place. The subject of nervous disturbances associated with worms is one on which a volume could be written. These may assume various forms, but are most commonly of a choreiform or "hysterical" type. Amongst the most classical is the well-known phenomenon of dirt-eating (*pica*), which is frequently well marked in hookworm cases. This, however, is only a special instance of the general symptom, vicarious appetite, common to infections with most intestinal worms, and not by any means confined to human cases.

The association, under certain circumstances, of parasitic intestinal worms with ocular disturbances has been observed by numerous clinicians. Here again toxic action is called into account, but in certain cases—e.g., ankylostoma—the ocular troubles, such as hæmorrhages, are similar to those not infrequently met with in cases of anæmia of non-parasitic origin.

The occurrence of cutaneous disturbances is, to my mind, not the least cogent evidence of toxic action. So far as one can judge, the phenomena are somewhat analogous to those associated with serum rashes. Quite a number of cases are on record, amongst the most interesting of which are those discussed by Ransom at a meeting of the Helminthological Society of Washington in 1922. As Railliet correctly concludes, much remains for investigation in this connexion

That intestinal worms may cause, or be associated in the causation of, enteritis there is not the slightest doubt. Even excluding the large number of cases in which worms are simply concomitants of other enteritis-producing organisms—bacterial, protozoal, &c.—there remain many in which intestinal worms are, indisputably, at least the initiating cause of the trouble. While no one would suggest that ascaris or trichocephalus is a cause of typhoid fever or cholera, yet there are many indications that worms may function as potent predisposing or accessory factors in these diseases. Guerrini's statistics (1915) in regard to cholera, for instance, undoubtedly point that way. The actuality of enteritis due to strongyloides is also beyond dispute. The fact that this worm, like ankylostoma, normally infects through the skin, and that before it reaches the intestine it passes some time in the tissues, blood-vessels, and lungs, would appear to suggest that by the time it reaches the intestine its extraneous bacterial contamination will be slight, if any. Again, there is no doubt that when it does eventually reach the intestine it frequently, within a short space of time, initiates a violent enteritis. These statements, I may add, are based on the result of personal observation and experiment.

It is well known that strongyloides and ankylostoma are not infrequently associated, and their mode of infection is more or less similar, but, in my experience, early ankylostoma infections are not characterised by marked enteritis; on the other hand, early strongyloides infections and mixed infections are frequently associated with severe diarrhœa, the stools in which are almost characteristically fœtid. It seemed to me to be frequently, though not invariably, possible to diagnose the presence of strongyloides from the character of the stool alone, such diagnosis being later confirmed, quite apart from examination of the eggs, by the appearance in fæcal cultures of the heterogeneous form.

The association of intestinal worms with atypical febrile conditions has been noted. This may be taken to be correlated to some extent with toxic action, but the relation is at best obscure, and fever does not, as a rule, play a prominent part in the symptomatology of unmixed helminthic infection. It may, however, ensue as a result of gastro-intestinal disturbance. On the other hand, anæmia of greatly varying degree is one of the most frequently quoted syndromes. The nature of this anæmia has been, and still is, a matter of some difference of opinion. This is possibly due to the fact that "helminthic anæmia" is far from being a single pathological entity. The species to which anæmia of a high degree has been attributed are the hookworms and the broad tapeworm, *Dibothriocephalus latus*. The anæmias resulting from these infections are not, however, of the same type. Hookworm anæmia, at least in early cases, appears to prevent the typical features of a secondary anæmia, though it is doubtful if this description applies in every case. On the other hand, with dibothriocephalus there is no intestinal hæmorrhage, and the resulting anæmia, according to Tallqvist, resembles a true pernicious anæmia.

The rôle of trichocephalus and certain other worms in the production of anæmia is decidedly more obscure. For the present it appears best to admit that there is an element of doubt, while drawing attention to the fact that Railliet and many independent observers have brought forward clinical and experimental data to support the view that anæmia of less or greater degree not infrequently results from, or is associated with, many parasitic intestinal worm infections. This appears to be an essentially fit and proper subject of further medical research, such as is being, or about to be, conducted in France.

The Surgical Side.

On the surgical side the available data are perhaps more clear-cut, even striking. The outstanding and most frequently observed surgical lesion is biliary obstruction due to ascaris. The frequent records of its occurrence serve to indicate that its possibility should be considered in cases of obstructive jaundice. Verminous appendicitis, however, is the subject which has given rise to greatest controversy. Railliet's views are moderate, and therefore worthy of attention. His observation that both oxyuris and trichocephalus actually pierce the wall of the appendix is

significant, though not necessarily proof conclusive. It is, moreover, obvious that ascaris may cause appendicular obstruction almost as readily as it causes biliary obstruction, but whether that gives rise to, or produces symptoms simulating, appendicitis is, of course, another matter. Most strenuous of all upholders of the theory of the verminous causation of appendicitis is Rheindorf, but his very insistence naturally engenders opposition. More recently Eastwood has apparently demonstrated the absence of any causal relation between oxyuris and appendicitis. His work, though there may be flaws in its presentation, is undoubtedly the most cogent on the negative side. He argues that because oxyuris is very frequently found in normal appendices, and does not cause a local eosinophilia, it cannot therefore be a factor in the production of appendicitis. Until, however, the entity and ætiology of appendicitis can be satisfactorily demonstrated, it seems wise to admit, and bear in mind, that intestinal worms may either, indirectly, cause appendicitis or, what is of equal clinical importance, give rise to symptoms simulating that disease (pseudo-appendicitis).

How one may absolutely distinguish the false from the real has not yet transpired, but should such a distinction be clinically feasible it would have the desirable result of obviating unnecessary surgical interference. Appendicectomy has, as we know, of late years descended from the fashionable to the commonplace. Its necessity, while unfortunately only too real, is possibly in danger of becoming exaggerated. In any case, however, whether intestinal worms cause appendicitis or not, the fact will not affect the treatment, expectant or operative, of that disease, though obviously it certainly affects the question of possible prophylaxis.

A matter with which Railliet does not deal, but which has since come into prominence, is the relationship of intestinal worms to pneumonic disease. The fact that ascaris, and possibly trichocephalus, spends part of its larval developmental life in the lungs must put an entirely different complexion upon our views with regard to the pathogenicity of these common intestinal worms. A discovery such as this is added evidence, if such were wanting, of the necessity for keeping an open mind in every department of medical research. The shibboleth and the *ignis fatuus* are equally unreliable guides.

Conclusion.

It seems to me that the whole subject is one that requires and demands much further research from various points of view. While it would be absurd to accept all the observations and opinions of the older writers, amongst whom there was a tendency to ascribe many diseases of unknown ætiology to the malevolent action of very obvious worms, it appears to be equally benighted to adopt a diametrically opposed view.

This swaying of opinion is not confined to helminthology. It affects, equally, bacteriology and other branches of preventive medicine. While, therefore, the greatest caution must be, and generally is, exercised in making any positive assertion, an even greater reserve must be adopted in giving expression to any unqualified general negation—if for no other reason than that it is usually much easier to demonstrate a positive than it is to prove an absolute negative.

As from the foregoing it may be obvious that the subject of so-called "common" intestinal worms is worthy of at least a little more attention than at present it appears to receive, I venture to think that some good purpose might be served by the compilation of an up-to-date bibliography containing the more important clinical records of recent years. Such a bibliography, which I purpose publishing shortly, if it achieves no other object, may at least save the time of others who may be interested in the matter, and who may have occasion to consult the available, but unfortunately much scattered, literature on the subject.

THE "ELECTRONIC REACTIONS" OF ABRAMS (E.R.A.).

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PAST PRESIDENT, AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.

Dr. Albert Abrams claimed that his "electronic reactions are either the greatest miracle of the age, or else the greatest fake," and after careful investigation it would appear that this second claim is justified. A brief and concise definition of what is meant by "electronic reactions" is well-nigh impossible, but a general idea may be gained by studying the principles as set forth by Abrams. These are:—

"1. Physiologic phenomena are manifestations of electronic energy.

2. Pathologic phenomena are manifestations of perturbed electronic energy.

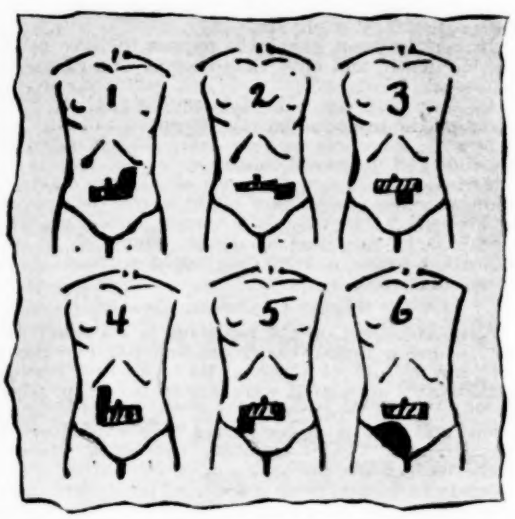
3. The energy in health and disease has an invariable and definite rate of vibration (determinable by the electronic reactions).

4. Specific drugs possess a like vibratory rate as the diseases for which they are effective. These like vibratory rates (homovibrations) of drugs owe their efficiency to their inherent radio-activity.

[So an obsolete drug like gamboge painted on the chest in incipient tuberculosis will effect a symptomatic cure within a few weeks. Gamboge possesses the same vibratory rate as tuberculosis. Our conception that drug action is dependent on cellular contact is thus demolished.]

5. All forms of energy whether derived from heat, electricity, or magnetism may be made to yield different rates of vibration and these rates corresponding to the diseases are utilised for their destruction."

FIG. 1.



This chart represents the areas of dullness Abrams claims to have found in determining the religion of individuals by means of the E.R.A. (1) Represents the areas of dullness for Catholic, (2) Methodist, (3) Seventh-Day Adventist, (4) Theosophist, (5) Protestant, (6) Jew.

These rates of vibrations are obtained or determined by means of an instrument known as the oscilloclast. It has also been called in the United States press—

"A contraption which might have been thrown together by a ten year old boy who knows a little about electricity, to mystify an eight year old boy who knows nothing about it."

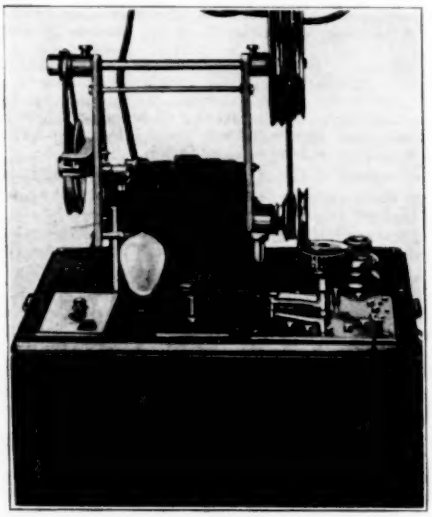
Abrams says that it is an apparatus for treating diseases by definite rates of vibration on the theory that every disease has its own vibratory period and that by increasing the force of the vibrations by means of the oscilloclast you shatter the disease.

It is possible that the electronic theory is not yet

quite so clear that a quotation from its originator may help to make it more intelligible :—

"Electrons and not cells are the units of the body. Electrons are charges of electricity and the basis of the material universe, including man. Electrons have invariably uniform vibrations, and it is only in the rate of vibrations

FIG. 2.



The "oscilloclast" (patent pending) as pictured in *Physico-Clinical Medicine*, June, 1919.—(From the *Journal of the A.M.A.*)

that we can distinguish one object from another object . . . During the revolutions of electrons, thousands of billions of times per second, their vibrations (radiations) escape. Many are perceived as light, heat, electricity, and so on, but most of them are unrecognised, because they have thus far eluded all scientific instruments.

Vibrations can destroy disease. Every object has a natural period of vibration. If one approaches an object with a source of vibration of the same vibratory rate as itself, the object will be set in vibration. This forced vibration of the object may attain such a magnitude as to fracture and utterly destroy it. Caruso could take a wine glass and determine its tone (vibratory rate) by tapping it. Then by singing that tone in the glass, would shatter it. This is exactly what happens when you impose on a disease its own vibratory rate by the oscilloclast."—"Catechism of the Electronic Methods of Dr. Albert Abrams." Abrams.

Thus every illness is due to erroneous vibrations of the electrons. Up till now we have believed that the size of an electron is so minute that the most powerful microscope is useless to render it visible to the human eye, and that there is no direct means of measuring the size of it. But the discovery of Abrams, if proved, would upset our present conception of matter. The education of electrons and teaching them their proper vibratory rate, thereby curing the diseases which their faulty vibration is causing, is a claim with which no scientific discovery of any age can compete.

The three diseases which are usually diagnosed and (or) treated by the Abrams method are syphilis, malignant disease—chiefly carcinoma—and tuberculosis. But the claims of Dr. Abrams are by no means limited to the diagnosis and cure of disease. By means of another instrument which he calls the "sphygmobiometer," which has been called by a detractor "a bunch of junk," he claims to establish the parentage of a child through comparison of the vibrations of a drop of the child's blood with those of the blood of the supposed father. He has appeared in the witness box in a court of law to give evidence in support of determining the parentage of a child. It is not on record that the court accepted the test as final.

Another claim, perhaps not so sensational but equally bewildering to the man whose scientific education is limited to the more generally accepted theories, is that he can with a tuning-fork measure the vibrations of light waves emitted from colours, these being in the hundreds of millions and the maximum vibrations of tuning-forks being about 16,000. Nor does the tale of the marvellous claims or suggested claims allied to the basic discovery cease here. There is an Abrams theory which attributes sexuality to sound, and also to numbers, while by the E.R.A. it is said to be possible to determine the religion of individuals. Fig. 1 is a reproduction from Dr. Abrams's own journal (*Physico-Clinical Medicine*, September, 1922).

These areas of religious dullness are obtained and other diagnoses made by the Abrams oscilloclast. This is a box on the outside of which is a motor and a current breaker which run when the machine is connected to the ordinary electric lighting circuit. There are also two controls, the function of which is not evident. The current breaker is not electrically connected to anything at all (Fig. 2).

The diagram of the wiring (Fig. 3) is particularly interesting, for with our own knowledge of electricity it would appear to be impossible for any electric current

FIG. 3.

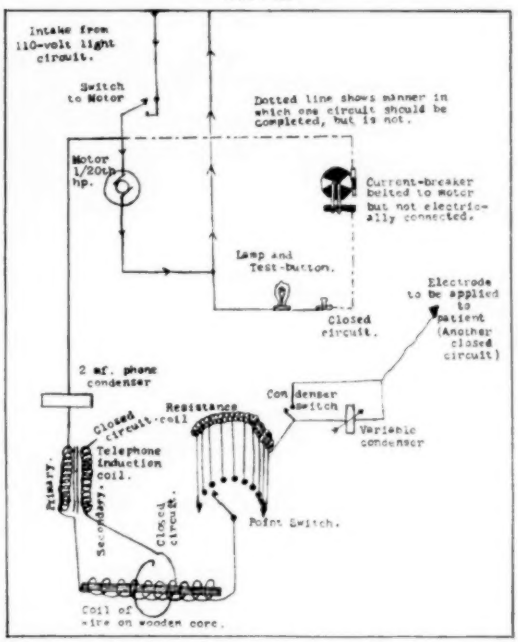


Diagram of the wiring of the oscilloclast.—(From the *Dearborn Independent*, February and March, 1923.)

in any form to pass from the intake (top left-hand corner) to the patient (right side), and this is borne out if a galvanometer be placed between the electrode and the patient, no deflection of the needle can be seen to be taking place at any time.

There is a shelf inside the box which separates the upper half from the lower. In the centre is an "induction coil" consisting of one wire wound round a wooden core and covered with paraffin and a pasteboard tube, the whole thrust through a wooden wheel around which is wound one strand of wire which is then cut off, completely closing the circuit and insulating the two wires by means of some 4 inches of wood. Had we not Dr. Abrams's assurance to the contrary, we should have to believe that this coil is worthless so far as the transmission or induction of electricity is concerned, which is the conclusion of Mr. Frank Rieber, head of the Rontgen Appliance Corporation of San Francisco. Shorn of technical wording a report of experts, of which Mr. Rieber was one, at the instigation of the *Dearborn Independent* made four important findings.

1. That no current appreciable to the most delicate galvanometer passes from the oscilloclast to the patient. Since the vibrations are carried by the electric current, it

is obvious that no vibrations pass from the oscilloclast to the patient.

2. That the construction and the wiring of the interior of the oscilloclast is such that no electrical current could pass through the machine, and that this wiring and construction show a profound ignorance on the part of the inventor of all the laws of electricity or of handling of the electric current.

3. That the only possible result of the application of the electric current to the oscilloclast is the turning over of the armature of a small motor and the rotation of a small current-breaker which is belted to the shaft of that motor, both of these having been purchased by Abrams from the common stock of an equipment store and installed on the outside top of the oscilloclast.

4. That there is more electricity in a handshake, or in the "laying on of hands" than is delivered by the oscilloclast. That is to say, that the ailing human body would receive more vibration and a greater quantity of electricity from the work of a competent masseur using one hand than it would from a whole battery of oscilloclasts.

The concluding paragraphs of the report of Mr. Frank Rieber may be quoted:—

"From an observation of the internal arrangement of the oscilloclast shown on the accompanying diagram this is not surprising. Several of the circuits have no beginning and no end. That is, they are not complete, but terminate in dead-ended wires. There is therefore no place for the electricity to go on these circuits and nothing it could possibly do if it got there. Further, the electrical system in the oscilloclast does not constitute any known means for either generating or utilising the electrical oscillation. If the circuits employed have any purpose at all, this purpose is not of the sort to be evident to anyone familiar with electrical engineering or physical laboratory practice."

Now as to the manner in which this instrument is used to obtain the electronic reactions of Abrams. There are two general methods of making diagnosis, one in which the patient is present in person and the other in which the patient is represented by a specimen of blood, saliva, or handwriting, while the reactions are obtained by percussing the abdomen of a healthy young man who serves as a proxy. He stands on metal plates duly grounded. He is connected with the apparatus by means of a piece of metal on his forehead. The lights must be dimmed so as to have a minimum of light energy interfering with the delicate processes involved. He stands erect, hands held downwards, palms outwards and forwards. He must be facing west. The diagnostician sits in front of the proxy, or human reagent, and percusses his abdomen, and different areas of dullness or different percussion notes appear or disappear in varying situations according, so says Abrams, to the emanations, or vibrations, flowing from the drop of dried blood, or saliva, or handwriting, through the apparatus to the abdomen of the proxy. It should be mentioned that in order to eliminate extraneous electronic impressions the sample of blood or other matter is wiped, so to speak, with an ordinary horseshoe magnet. Later on a horseshoe magnet is suspended over the head of the reagent. This is to help to differentiate electronic reactions. When it is realised how localised is the magnetic force of a small horseshoe magnet, the extreme sensitiveness of these reactions is dimly perceived and with such extreme sensitiveness it is only natural that error may creep in from time to time, even as in the older and more firmly established medical methods. And the diagnoses made by Dr. Abrams and published by him (*Physico-Clinical Medicine*, March, 1922) appear open to fallacies or errors of experiment.

Autograph.	Date of writing.	Remarks.
Dr. Samuel Johnson	Feb. 7th, 1775.	Reaction acquired syphilis (cerebro-spinal strain) and tuberculosis.
Edgar A. Poe ..	Dec. 30th, 1846.	Cong. syphilis (cerebro-spinal) and reaction of dipsomania.
H. W. Longfellow	May 14th, 1855.	Cong. syphilis.
Oscar Wilde ..	No date.	Cong. syphilis, male reaction. Female reaction 1 16/25. Acquired syphilis (cerebro-spinal).
Samuel Pepys ..	July 5th, 1693.	Cong. syphilis (cerebro-spinal).
Bret Harte ..	No date.	Jewish on father's side. Cong. syphilis (cerebro-spinal).

These diagnoses, it will be seen, were made by the second method from samples of handwriting of deceased persons in this particular instance.

And yet one or two more examples which may tend to shake conviction in the infallibility of E.R.A. or harden the sceptic in his scepticism. The first case is reported in the *Boston Medical and Surgical Journal* (Oct. 19th, 1922):—

"At a meeting of the Massachusetts Medical Society, Dr. Abrams having, it is said, refused to submit the method to any test which was offered him said he would confine himself to demonstrating the presence of lesions 'the existence of most of which could be proved only by post-mortem examination.' A member of the staff of the *Boston Medical and Surgical Journal*, a man in perfect health, was selected for experiment. By his diagnostic methods Abrams discovered in this healthy individual a streptococcus infection, tuberculosis of the intestinal tract, congenital syphilis, and intestinal sarcoma—otherwise the man was all right! It is understood that the volunteer inconsiderately refused to submit to a post-mortem examination."

The *Journal of the A.M.A.* (Dec. 30th, 1922) relates another case, many similar cases being cited weekly in the United States. A blood specimen was collected in the presence of three reputable physicians in a town in Oklahama and sent to a Dr. E——, medical director of a "Physico-Clinical Laboratory for the Electronic Reactions of Abrams." The report was, "Congenital diminished resistance," which is a euphemism of the cult for syphilis acquired or congenital, and appears in most reports, "cerebro-spinal and digestive strain; metastatic carcinoma, liver and right colon. Tuberculosis, genito-urinary tract. Colisepsis. Streptococcic infection in gall-bladder region." The specimen of blood, it appears, was not taken from any human being at all, but was obtained from "an unsuspecting and believed-to-be virtuous female guinea-pig. The pig was duly arranged facing west when the blood was taken." To another professor of electronic diagnosis was sent a drop of blood from a male guinea-pig, and diagnosis was made. In addition, of course, to the congenital syphilis, there was "digestive sarcoma of the cardiac end of the stomach and streptococcic infection of the left frontal sinus, of the gall bladder, and '*of the left tube.*'" For the oscilloclast to be able to find a reaction for pus tubes in the blood of a male guinea-pig stamps this instrument as unique.

One more instance of the wonders of the diagnoses which are attributed to the oscilloclast will perhaps enable us to say that the claim of Abrams that "it is the greatest miracle of the age or the biggest fake" has justification. Dr. J. J. Blue, of Saginaw, Michigan, in order to test the diagnostic ability of one of the disciples of Abrams, sent a cheque and sample with a request for diagnosis. The following is a report of the diagnosis made from the sample of blood submitted:—

"Congenital and cryptogenic syphilis; congenital gonorrhœa; carcinoma of stomach, small and large intestine, colon, pancreas, kidneys and bladder; epithelioma (not localised); sarcoma of spine; chronic malaria; diabetes. That may look like a formidable array of diseases to you, but it is not so bad from an electronic standpoint. I cannot give a prognosis without a personal examination, but if all other things are equal your chances for recovery are very good."

The cheery optimism of the professors of the electronic reactions of Abrams, in face of this formidable array of human diseases, was wasted. The specimen of blood had been taken from a perfectly respectable Plymouth Rock rooster which had been confined in a well-ventilated coop since its birth. It may be that the rooster was not facing due west, or that the light was not sufficiently subdued at the time the blood specimen was taken.

I am indebted to the *Journal of the A.M.A.* of various dates; to the report on the investigation instituted by the *Dearborn Independent* appearing in the February–March, 1923, issue of that paper; and to the *Boston Medical and Surgical Journal*, and also to several numbers of *Physico-Clinical Medicine*. I have also to thank several medical men who have shown me the oscilloclast and have given me their experiences with it, but perhaps the reader will have had enough. Comment has been avoided and facts only have been stated, as they have been ascertained by observers, both as regards construction of the instrument and the nature of the electronic reactions and the diagnoses obtained.

A TECHNIQUE FOR CYSTOSCOPY IN THE PRESENCE OF PUS AND BLOOD.

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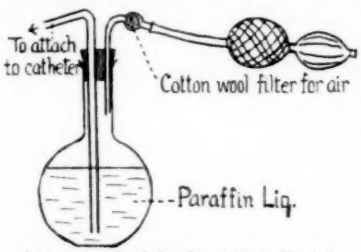
IT is a matter of common experience that cystoscopy in the presence of pus or blood may be extremely difficult or even impossible, a state of affairs which may not be remedied by repeated irrigation of the bladder. The following method is suggested to overcome this irritating difficulty. I say suggested because, although the method has been used in a number of cases with success, a sufficient amount of experience has not been gained to judge of its ultimate utility or its worthiness of a place in the armamentarium of the urologist. The object of publishing this note is to afford an opportunity to all to test the method, each for himself.

The method depends for its action upon the immiscibility of oil and water, oil in this instance being used as a medium for the transmission of light. On account of the physical properties of the oil it will always remain clear and free from admixture of blood, pus, or urine.

Technique.—After the passage of a catheter the bladder is washed out in the usual manner. A sufficient amount of sterilised paraffin liq.—i.e., about 8 or 10 oz.—is injected through the catheter either by means of the apparatus shown in the accompanying sketch or by means of a Higginson syringe. It is advantageous to use warm oil at body temperature and as large a catheter as feasible. The cystoscope is dipped into sterilised paraffin and then passed into the bladder. The oiling of the cystoscope must be regarded as an important detail, since the paraffin acts in the dual capacity of a lubricant and a protective layer to the lens. The examination of the interior of the bladder is carried out in the usual manner, but it will be noted that urine passing through the ureter does not mix with the oil, and appears very much like bubbles of air. Urine and blood fall in drops, and in a leisurely fashion, to the most dependent part, where they collect together. The red colour of blood and the blue of indigo-carmine are readily recognisable, but it is conceivable that if present in sufficient quantity they might easily obscure the lowest part of the bladder wall to the inconvenience of the surgeon. There is no reason, however, why this difficulty should not be overcome by alteration of the position of the patient. At first difficulties were encountered in focusing the image, but it was later recognised that these were largely due to the insufficient filling of the bladder by the paraffin.



Apparatus for injection of paraffin into bladder.

Paraffin was chosen on account of its freedom from nocuous chemical impurities and its almost ideal transparency, but it is not supposed that the paraffin liq. B.P. is ideal. By the courtesy of Messrs. the Silvertown Lubricants Ltd., Silvertown, E.16, there has been an opportunity of testing two samples of paraffin specially prepared for the purpose. Both oils are of low specific gravity, 0·817 and 0·863 respectively. The lighter of the two is of watery consistence, the other rather more viscous; they are odourless, colourless, crystal-clear, and non-irritating to the conjunctiva. They are not combustible when exposed to air at ordinary temperatures. There is little to choose between the two oils, any balance being in favour of the heavier if used at body temperature, but either is more suitable for cystoscopy than the paraffin liq. B.P. Diathermy can be carried out with the electrode submerged in paraffin, and would seem to be a safe procedure in the absence of any quantity of air; attempts to produce ignition of the oil in an enclosed air-containing space have, so far, been unsuccessful. Diathermy through paraffin and in the presence of air in the bladder must, however, be regarded as dangerous until further experiments prove the contrary.

The practice of the method outlined above is beset with difficulties which are not at first apparent and which, with patience, are not insuperable; but it will be remembered that the method was elaborated for use in a limited class of cases where ordinary methods fail.

I am indebted to my chief, Mr. John Clay, and to Mr. Hamilton Drummond for kindly supplying cases to test the method.

Clinical and Laboratory Notes.

A CASE OF MITRAL STENOSIS.

BY DUNCAN LEYS, M.B. OXF., M.R.C.P. LOND.,
HOUSE PHYSICIAN TO PADDINGTON GREEN CHILDREN'S HOSPITAL

THE following case of mitral stenosis in a young boy is of interest in that a complete life-history of the disease was obtained. The striking features of the case were (1) the appearance of definite signs of mitral stenosis within twelve months of the onset of rheumatic infection, and (2) the leading part played by this lesion, as shown during life by the clinical symptoms and cardiac changes, in causing death five years after the first attack.

Rheumatic pains, with arthritis of wrists and ankles, first occurred at the age of 6, in November, 1918. The patient was brought for treatment to Paddington Green Children's Hospital, where he remained for one month, during which time there was no evidence of any heart lesion. Subsequently, there were no rheumatic symptoms until October, 1919, when he was readmitted to hospital with arthritis and tonsillitis: the apex beat was now half an inch outside the nipple, and an apical systolic murmur was present, but during his stay in hospital a diastolic murmur developed which, before his discharge three weeks later, had become a definite presystolic "roughening" leading up to the first sound at the apex. He remained free from symptoms, and no further evidence of re-infection occurred until January, 1923, when—after getting out of bed, where he had lain for three weeks with rheumatic pains—he became breathless and exhausted on any exertion. He was re-admitted to hospital in April, 1923. Rheumatic nodules were present; the pulse was regular, but of very small volume; a presystolic thrill was felt at the apex, and well-marked systolic and presystolic murmurs were heard; after 14 days in hospital he was able to walk about without discomfort and was discharged. The following July found him once more in hospital, with definite signs of heart failure—dyspnœa, cough, cyanosis, and palpable, tender liver. The apex beat, which was regarded as a right ventricle impulse, remained in the fifth space, half an inch outside the nipple, and percussion showed extension of the heart dullness to right of the sternum; 18 days later he was again walking without distress, and was seen shortly afterwards bathing in the Regent's Canal.

At the beginning of October, 1923, he was brought to the hospital with symptoms of heart failure. The respirations were 40 to the minute, temperature 104° F., pulse 140—regular and of very small volume: the heart's impulse extended out to the axillary border, and the presystolic murmur alone was heard, with a banging second pulmonary sound. After 14 days in bed he was able to get up, but the next day coughed up a little blood; a week later a hæmoptysis of half a pint took place; at this time there was no œdema, nor was the liver enlarged. For the next few days the temperature ranged from 100° in the morning to

103°–104° in the evening; there were signs of bronchitis, and over a small area above the liver, where he complained of pain, a pleural rub and, later, tubular breathing were heard. On the fourth and sixth days hæmoptyses of half a pint occurred, but œdema did not appear until the end of the next week, during which time occasional vomiting and slight hæmoptyses took place; the measure of urine began to decrease, but specimens remained free of albumin; the pulse was small, rapid, and regular. The following days, which preceded death, were marked by irregular pyrexia—probably due to the bronchitis and pneumonic condition—and by a gradual stasis of the systemic circulation, progressive œdema of extremities and scrotum, ascites, and great engorgement of the liver.

Post mortem, there was an excess of fluid in the pericardium, but no adhesions; the right auricle and ventricle were very much dilated and hypertrophied, occupying the whole front of the heart; the left auricle widely dilated, the left ventricle small, with healthy muscle (microscopical examination showed no evidence of myocarditis). The mitral valve showed extreme stenosis (scarcely admitting the tip of the little finger), the flaps were adherent to each other, a mass of fibrous tissue, and the chordæ tendineæ much shortened. Recent vegetations were seen on the margin of the narrowed mitral orifice, on the dilated tricuspid, and on the aortic cusps, but, apart from the mitral, there were no signs of old valvular disease. In the lungs the right middle lobe showed pneumonic consolidation; elsewhere there were numerous areas of collapse, and a few doubtful infarctions of small size, but no signs of recent or old pleurisy. There were no infarctions in the spleen or kidneys.

The cause of death in cardiac disease during childhood is usually identified with failure of the left ventricle, due to myocarditis or mechanical defect from adherent pericardium, aortic or mitral regurgitation, &c. In this case, however, the fault appeared to lie in the inability of the rest of the heart to supply the left ventricle with enough blood to maintain the circulation; this was due to a degree of stenosis in the mitral valve which would have been remarkable even in an adult heart, and was evidenced clinically by the persistently small, rapid pulse, and by the gross embarrassment of the pulmonary circulation (the boy coughed up more than half a pint of blood on three separate occasions within one week, at a time when signs of stasis in the systemic circulation were lacking).

My thanks are due to Dr. G. A. Sutherland, whose case it was, for the opportunity of recording it.

TWO UNUSUAL CASES OF INTESTINAL OBSTRUCTION.

BY CECIL P. G. WAKELEY, F.R.C.S. ENG.,
ASSISTANT SURGEON AND TEACHER OF CLINICAL SURGERY, KING'S COLLEGE HOSPITAL.

AXIAL rotation, or torsion of the pedicle, of an ovarian cyst occurs in about 2 per cent. of cases which come to operation, and this phenomenon takes place more commonly with cystic than with solid tumours. Axial rotation is met with most frequently during pregnancy and in the puerperium, but rarely gives rise to intestinal obstruction.

CASE 1.—Patient, aged 72, was admitted to King's College Hospital, June 21st, 1923, with signs of intestinal obstruction. The patient stated that two days before admission to hospital she was seized with acute pain in the abdomen and vomited several times. On admission to hospital her temperature was 98·4° F., pulse 72, and respirations 24. The abdomen was very distended, except in the flanks, and visible peristalsis was evident. A hard painful tumour could be palpated in the right iliac fossa. The obstruction was thought to be due to the tumour pressing on the lower part of the ileum, as the signs all pointed to an obstruction in the small intestine.

Operation.—Laparotomy was performed through a right paramedial incision. The small intestine was very distended. The obstruction was found to be due to a twisted ovarian cyst which was almost black in colour, adherent to the medial side of the cæcum and completely occluding the ileo-cæcal valve. The cyst, which was the size of a large orange, was carefully dissected off the cæcum and removed, together with the right Fallopian tube, which was also very congested. As soon as the obstruction to the ileo-cæcal valve was removed, the gaseous intestinal contents moved into the cæcum and ascending colon.

The wound healed well, and the patient left hospital ten days after the operation. The cyst on microscopical examination proved to be teratoma.

CASE 2.—Patient, aged 73, was admitted to King's College Hospital, Nov. 20th, 1923, with the following history. Three days earlier she was seized with acute pain in the lower part of the abdomen, which was followed by vomiting on two occasions. Previously she had enjoyed good health. On admission the temperature was 97·6° F., pulse 100, and respirations 28. The abdomen was distended; there was no rigidity, but there was some tenderness in the right iliac fossa. A bilateral swelling was found in the hypogastrium bigger on the left side than on the right. The swellings were distinct and well defined. There was no free fluid in the abdomen. Per vaginam the swelling on the left side was found to be fixed in the pelvis.

Operation.—Laparotomy was performed through a paramedial incision; two ovarian cysts were found. That arising from the left ovary was a pseudo-mucinous cyst, the pedicle of which was twisted through two and a half turns; it was found to be impacted in the pelvis. With difficulty the cyst was elevated from the pelvis and removed. The cyst of the right ovary was a dermoid; it had undergone axial rotation and was very congested and adherent to the medial aspect of the cæcum, causing obstruction to the ileo-cæcal valve. It was removed with the right Fallopian tube. The abdomen was closed without drainage. The dermoid cyst on section contained pus.

The patient made excellent progress for the first week, but then died suddenly from pulmonary embolism.

It will be noticed that in both the cases recorded the patients were over 70 years of age, and in each case the intestinal obstruction was caused through adhesions between a twisted teratomatous ovarian cyst and the cæcum.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

GRADING OF THE POPULATION FROM THE POINT OF VIEW OF PHYSICAL FITNESS.

A SPECIAL meeting of this Society was held on Jan. 21st at 1, Wimpole-street, W., Sir WILLIAM HALE-WHITE, the President, in the chair.

Air-Commodore DAVID MUNRO, in opening a discussion on this subject, said it was complex and far-reaching, being mixed up with fundamental, social, economic, and political problems, some of which had been subjected to close study by the best brains in the medical profession. The late war had shown the physical state of our manhood to be far below what the average man thought it to be. The war-time pronouncement of a well-known politician, who declared "We are a C 3 people," was untrue for certain classes of the population, but for other classes it was pretty well agreed to be true. Thus, while miners and agricultural labourers were found to have a high index of physical fitness, as judged by Keith's standard, those engaged in sedentary industrial occupations were found to have a low index. The report issued by the Ministry of National Service upon the physical examination of men of military age by National Service Medical Boards was the most comprehensive survey that had yet been attempted on the health and physique of a large portion of the population. Records of some 2½ million examinations carried out on men between the ages of 18 to 45 were analysed. To quote the words of the report:—

> As the result of this analysis the conclusions come to were that of every nine men of military age in Great Britain on the average *three* were perfectly fit and healthy; *two* were upon a definitely infirm plane of health and strength whether from some disability or from some failure in development; *three* were incapable of undergoing more than a very moderate degree of physical exertion and could almost—in view of their age—with justice be described as physical wrecks, and the remaining man was a chronic invalid with a precarious hold on life.

As matters had existed in the past only the stress of a great national struggle could have brought into existence, and caused to function, the machinery for

conducting such a number of medical examinations, and for analysing their results, and it might well be wondered what practical possibility there was in peace-time of obtaining records to show the state of physical fitness of any large section of the population and, if obtained, to what practical use they could be put. He would endeavour to give a sketch of (*a*) the value of such records, if obtained; (*b*) the amount of information necessary to be recorded; (*c*) the possible method of obtaining and recording it.

Value of Records and Amount Required.

The picture presented would indicate the directions in which efforts should be made to improve health generally, and as such the figures would be of great value to the Ministry of Health.

To the physical culture teachers these figures would be of value in giving them a picture of the different classes. Figures of this kind, giving information of the *fit* classes of the population, would undoubtedly be useful in the future in the consideration of eugenic problems, for one could not forecast what influence Malthusian and neo-Malthusian doctrines might have on future policies. Information of value to industrial psychologists would be obtained. Physical fitness was a quality not capable of precise measurement. There were, it was true, certain qualities capable of exact measurement, such as height, weight, and girth of chest. Sir Arthur Keith's standard, as he (the speaker) understood it, was based on such measurements—in fact, on height measurements. But while physical qualities lent themselves to exact measurement physical disabilities unfortunately did not. To refer again to words in the report already quoted:—

> To give an exact percentage value to every known disability would present insuperable difficulties in practice. The health of individuals and of each of their component structures and organs shades off gradually, and often almost insensibly, into disease, which in its turn exhibits varying degrees of intensity which are not sharply defined from each other, and react differently on different individuals. The medical interpretation of objective clinical phenomena does not, and cannot, led itself to expression in figures.

The borderland of disease was still largely unexplored. What, then, was it necessary to do in the way of getting data about physical fitness? He believed that certain of the tests in use in the Royal Air Force, for assessment of the physical fitness of air pilots, gave results capable of numerical expression, and yielding extensive information as to the state of health of the individual tested. According to the periodic results of these tests, supplemented by a record of observed physical disabilities, he felt that individuals *might* be classified from a health point of view. The tests he would describe gave no results indicating in the subjects any special aptitude for special employments, and therefore, from the point of view of the industrial psychologist, they would be valuable in picking out the man who was physically and mentally fit for arduous work, but not the man likely to become a skilled manipulator. For these accessory tests—such as reaction-time tests—would need be employed. He would prefer to use the words "physical and mental endurance" rather than "physical fitness"—meaning that state of health which made a man able to perform an act of physical exertion not once or for a short time but repeatedly over a long period of time without undue physical or nervous stress This was a state of health which required personal care and preparation with a view to that end. Even then, every man had his breaking-point, and the fit man was the man whose breaking-point takes longest to supervene. These particular tests were originated after examination of men who had manifested such endurance—viz., star-turn pilots. The tests which he would suggest were (1) the "endurance" or mercury U-tube test, and (2) the response of pulse to exercise, or exercise-tolerance test.

The Endurance Test.

This test was performed as follows. With the nose clipped, the subject was asked to empty the lungs completely, inhale fully, blow the mercury in this tube to 40 mm., and maintain it there without breathing for as long as possible, the pulse being counted in periods of five seconds during the performance of the test. The average time of holding up the mercury in a large number of cases tested was between 50 and 60 seconds. The pulse-rate should remain steady or rise gradually according to the time the breath was held. A marked rise was unsatisfactory, and a still more unsatisfactory sign of cardio-motor instability was a marked rise during the second or third period of five seconds, followed by a dying away to normal or below normal. For the detailed physiological explanation of the phenomena of this test he would refer them to its inventor, Group-Captain Martin Flack. The factors involved were, as he understood them, (1) the state of oxygenation of the patient's blood; (2) the state of his respiratory efficiency; (3) the tone of his blood-vessels. Whatever was the actual physiological machinery functioning in this test, empirically it had proved of great value to the R.A.F. as an indication of a man's capability for physical endurance. So far it had only been used for testing flying personnel, but he anticipated its general use in recruiting centres for all personnel at no very distant date. He also anticipated that a U-tube manometer would in the future be as much a part of the equipment of a general practitioner as is a stethoscope.

Response of Pulse to Exercise Test.

The pulse-rate was taken with the subject sitting down and the total number of beats in 60 seconds recorded. If the pulse was unsteady it was counted in periods of five seconds until the minimum constant rate was obtained. The subject was then directed to stand up, and the number of beats recorded in the first five seconds multiplied by 12 was recorded as the rate per minute for the standing-up pulse. With the subject still standing the examiner then recorded the lowest steady rate to which the pulse fell. Regulated exercise was then carried out by the subject placing one foot on a chair and standing alternately on the floor and on the chair five times in 15 seconds, the speed being regulated by the examiner raising and lowering the subject's wrist in every three seconds. At the end of the 15 seconds the pulse was counted in periods of five seconds—the time which it required to fall to its steady rate being recorded in addition to the rate per minute in the first five seconds after exercise. A typical numerical record of this test in a fit man would be (*a*) sitting 72, standing 84–72, after exercise 96; (*b*) time of return to normal standing rate, 20 seconds. This test was made five times up and down only on the chair because at the time several hundred men were being examined each day. A pulse which rose rapidly on standing and took some time—e.g., 1–2 minutes—to return to its lowest steady rate indicated probably poor splanchnic vaso-motor control—in such cases the pulse maintained its quicker rate during standing. If the time of return to normal after exercise exceeds 30 seconds it was suggestive of cardiovascular insufficiency or of nervous instability. Further, this test tended to differentiate between true and false tachycardias and to throw light on various disordered actions of the heart, of which one heard so much during the war. Possibly, also, it would assist in assessing the seriousness or otherwise of valvular lesions as expressed in terms of "bruits." To sum up—these two tests were simple in application; their results could be expressed numerically and used for health classification purposes; they could also be easily codified for statistical purposes; apart from gross disabilities and special qualifications such as vision, they gave a good indication of general neuro-muscular and constitutional tone at the time of examination. The standards of fitness in the R.A.F. were set by the examination of individuals who had successfully withstood considerable physical and nervous strain in contra-distinction to those who had broken down; the psychological element in the endurance test was, he thought, of real value as a measure of the mental

"make up" (the report of the Shell Shock Committee brought out very clearly the previous lack of attention to mental standards in the course of medical examinations); the tests would be valuable as a comparative test of fitness employed periodically, and he would suggest their use to safeguard the public in those occupations in which the element of public safety is involved—e.g., motor drivers, tram drivers, locomotive engine drivers, railway signalmen, factory machine operators, mercantile marine navigators, civilian air pilots; lastly, where employed up to date on a small scale they have given consistent results. The chief disadvantage of the tests was that temporary toxæmias upset them—mild influenza or even a heavy cold was sufficient to cause remarkable deterioration in results—hence the value of successive records. Also, of course, they gave no information about specific disabilities.

Possible Methods of Obtaining and Recording Data.

In the Services the obtaining of information was easy. If medical information was asked for, the statistics compiled from the forms rendered constituted the basis of future medical policy—though no one who filled up the forms ever believed it. If the filling up of forms was resented in the Services, in civil life it was hardly even tolerated; it would be quite impracticable to attempt to conduct any examinations annually on every man, woman, and child of the population—not only because of the difficulty in setting up the agency but also from the point of view of expense. Whatever agency were employed the coöperation of the Medical Research Council would be essential. However it might be done, he felt that some time or other some system of health classification of the population would be established.

The Government Commission.

Sir ARTHUR KEITH dated his own interest in the question of the physical fitness of the population from the appointment, in 1903 or 1904, of a Government Commission to inquire into it. The Anthropological Society had at that time suggested machinery for such an inquiry. Later, during the war, he became a member of the Committee appointed to advise the Ministry of National Service concerning the grading of recruits. With regard to the percentage of the really fit in any normal population, he did not use the data quite as had been stated. An infinite number of factors had to be considered, but it was found that of a thousand men from a part of the country with a good physical standard, 700 could be placed in grade 1, 200 in grade 2, and the remainder left over; in other parts of the country the figures were very different. The standard they had suggested had been formulated for the guidance of medical officers. At present it was no longer a matter of compulsory service, and recruits could be chosen by more exacting standards. Formerly the standard was purely that of physical appearance, weight, &c.; but these factors might fail. He considered that Group Captain Flack's work marked a great advance in methods of examination upon anything hitherto done in any country. We were seeing an extension of the movement perhaps introduced by Sir James Mackenzie—namely, the consideration of the manner in which an organ worked, the physiological method of classifying men.

Sir DUNCAN RHIND, speaking from the layman's point of view, recalled his experiences in gathering the statistics upon which the report of the Ministry of National Service was based. It was sometimes said that the National Service examinations carried out during the last year of the war were not indicative of the true state of the national health, but the fact remained that year by year there was a very large number of men called up and found unfit for any form of service. The percentage of the unfit, extending to the youths of 18, was much greater than it should have been. It would be very difficult to introduce tests on which estimates of man power could be based, but if it were possible, such tests as had been described were what was required.

The Examination of Recruits.

Dr. WILLIAM FITZGERALD said that he could perhaps speak with some little force on the question under discussion, for during the war he had been engaged solely in the examination of recruits at Liverpool. Under the Ministry of National Service alone his medical board had dealt with some 30,000 recruits, and he had previously served on the much-maligned War Office boards; even the latter, when left alone, could only find some 30 per cent. of recruits fit for general service. To a certain extent they were dealing with a residual population under the Ministry of National Service; the boys of 18 were particularly disappointing, in a great measure because they were suffering from conditions of the feet, tonsils, ears, nose, &c., which if treated earlier in life would have been remediable. The tests described by Air-Commodore Munro were most valuable; they could not replace sound clinical examination, but formed a useful adjunct. He failed to see how such medical examinations could be brought into being in this country, and referred to an instance in one of our Colonies showing how organised labour would object to them. Practically nothing had been done to remedy the state of affairs disclosed by the report of the Ministry of National Service. He had visited the slums of Liverpool on Saturdays and Sundays during the war, and had learned what they meant from the point of view of national health.

Group-Captain MARTIN FLACK explained that the tests referred to were designed solely as adjuncts to general physical examination. They were perhaps empirical, being set on subjects who had endured stress, but they seemed to show the importance of the efficiency of the controlling centres of respiration and circulation. A man who lacked good respiratory efficiency, and whose blood was not well arterialised, would quickly show signs of discomfort when breathing into a bag, giving up in under two minutes, whilst a healthier man might go on for five minutes or more. The unfit were hypersensitive to lack of oxygen. Marked respiratory inefficiency tended to be associated with laxity of the trunk muscles and pooling in the venous reservoirs, rendering the subject unable to respond to effort as the fit man was able to do.

The Tests of Efficiency.

Sir THOMAS LEWIS said that he had been out of touch with the questions under discussion since 1919, and had been particularly interested to hear about the tests of efficiency. He agreed that if they were used to test the fitness of large numbers of people, those chosen for the purpose would soon object. Examination was, however, possible in the case of men who claimed pensions. Exercise tests could not replace or be replaced by clinical examination. Men with valvular heart trouble were frequently found to tolerate exercise well; again, others who showed no signs of such trouble had poor tolerance of exercise. The tests must approximate to the forms of exercise they were intended to represent; many persons who could pass the chair test would fail if exercise were pressed further. The chair test was originally put out with some emphasis on the resulting pulse-rate, and there had arisen a tendency on the part of officers of medical boards to rely almost wholly on the reaction of the rate of the heart. It became almost a rule of thumb method, and was then misleading, since many men who showed a normal heart reaction soon displayed respiratory distress. Again, exhaustion might soon develop, the subject becoming unsteady on his feet, &c. The only really crucial test was the thing itself—to put men into the front line and see how they stood it. The individual test, again, might suit one man much better than another; a man should be put to his own work. He suggested a probational period for recruits, which, if not necessary now, might be useful in event of another problem like that of 1914. He wished to know if the mercury test had been employed mainly on young men or on men in the 'forties, who could not be expected to give the same reactions to the test.

Sir ARTHUR KEITH interpolated a few words to the effect that he had supported the idea of a probational period of a month or two months for recruits during the war.

Dr. F. W. COLLINGWOOD asked whether it would not be possible to include some test of character when examining recruits. In medical examinations for the Navy years before he had found men who passed all the tests and later showed an inability to submit to reasonable discipline.

Dr. G. H. HUNT wished to know the relative importance attached by Air-Commodore Munro to the mercury and exercise-tolerance tests. He had himself had experience with students, and had found the mercury test open to misinterpretation. He had also found the vital capacity test extremely fallacious; a very poor reaction had been given by a Rugby international player.

Colonel SYLVESTER BRADLEY said he had come to the conclusion that the exercise test was of value not as showing the amount of exercise the individual could perform, but as indicative of the latter's nervous stability. He pointed out that the period spent by the recruit at a depôt was a probationary period. Recruiting statistics were of interest as showing the alteration of incidence of various conditions such as varicose veins, which were apparently decreasing, and conditions apparently on the increase, such as flat-foot and middle-ear disease.

The PRESIDENT, speaking of his experience on the Appeal Board during the war, and as officer in charge of a hospital, remarked on the light-hearted way in which many recruiting officers treated nervous instability, particularly epilepsy, and on the harm and waste of public money this occasioned.

Reply.

Air-Commodore MUNRO, replying, said that the discussion had not developed as he had intended; he had approached it with a civil rather than a military mind. He had hoped for enlightenment as to the machinery by which examination of the population might be undertaken. He agreed that the point of the tests must be—does the man do the job? The tests he had instanced were used for flying, where the man could not be put to the work before examination. In answer to Sir Thomas Lewis's question, the tests were performed chiefly on young men, but also on every R.A.F. officer once a year, and before he was sent overseas. No marked deterioration with increasing age had been observed, but the examinations had not been carried out for a sufficient number of years for an answer to be given with confidence.

In answer to Dr. Hunt, he would point out that in any case the tests only provided bits of evidence, and could not be relied upon to the exclusion of general examination.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Jan. 16th, Sir DAVID WALLACE, the President, being in the chair.

Dr. J. S. FRASER gave a communication on

Septic Otitic Thrombosis of the Cranial Blood Sinuses and Jugular Bulb,

being an analysis of 28 consecutive cases operated on between 1907 and 1923 inclusive. He said that septic sinus thrombosis was relatively more common in acute than in chronic cases of middle-ear disease. As regards sex- and age-incidence, males were more numerous than females, and 19 of the 28 cases occurred in the first two decades. A history of aural discharge commencing after measles or scarlet fever was obtained in seven cases. Only one of the cases was operated on in private practice. Dr. Fraser regarded rigors as the most important symptom from the point of view of differential diagnosis. A rigor might occur in the initial stages of brain abscess or meningitis, but recurring rigors were only found in septic venous thrombosis. The hectic temperature was typical; that of meningitis being continuous, whilst in cases of brain abscess after the initial rigor it was usually subnormal. In all cases of middle-ear suppuration associated with evening pyrexia he held that the sinus should be exposed and examined. In contrast with cases of brain abscess and meningitis, the patient usually was mentally bright and felt well. Vomiting and giddiness were present in about half the chronic cases, but in these there were complications, such as labyrinthitis, meningitis, or brain abscess. Mastoid tenderness was by no means constant. Otoscopy was usually rendered difficult by discharges and cholesteatoma. A dry tongue, showing brownish fur in the centre, was frequently noticed. Blood cultures had not proved of great diagnostic service. Dr. Fraser went on to speak of the findings at operation in the seven acute cases. Pus in the antrum and cells was present in all. Four cases showed bacteriologically a pure growth; two of streptococcus, one of diphtheroid bacillus, and one of an organism closely resembling *B. influenzæ*. In the remaining three the infection was mixed. An extradural peri-sinus abscess was present in only three. A peri-sinus abscess alone may cause evening pyrexia. In deciding whether to open the sinus, the condition of the wall is important. If this shows reddish purple, so-called "healthy" granulations, draining of the abscess may suffice; otherwise the sinus must be opened and the clot turned out. In only one case was there intracranial complication—purulent meningitis. Metastatic abscesses occurred in three of the seven cases, five recovered, and two died. Only one had an uninterrupted recovery. Both of the fatal cases developed empyema. In the 21 chronic cases cholesteatoma with or without pus was present in 15. Of 15 investigated bacteriologically seven showed pure cultures, eight mixed infection. Peri-sinus abscess was present in 14. Complications were more frequent in these cases. Eight cases had labyrinthitis, four had purulent meningitis on admission, five developed it later; four cases had brain abscess. In several cases more than one complication was present. Only four showed metastatic abscesses. Of the 11 uncomplicated cases nine recovered and two died. Of the ten complicated cases four recovered and six died. Only four of the successful cases showed uninterrupted recovery. In the eight fatal cases septic thrombosis beyond the point of operation was found. In these cases septic infarcts in the lung with empyema were present. In only one case was there septic infarction with empyema in which the blood sinuses seemed healthy. In one case death was caused by meningitis alone, and in two there was, in addition, abscess of the temporal lobe. The paper was followed by a lantern demonstration.

In the subsequent discussion the PRESIDENT, Dr. LOGAN TURNER, Dr. D. J. GUTHRIE, Dr. G. E. MARTIN, Prof. EDWIN BRAMWELL, and Dr. W. T. GARDINER took part.

Dr. CHALMERS WATSON gave a communication on

Alimentary Sepsis from the Practitioner's Point of View.

He referred to the work of Metchnikoff, J. G. Adami, Arbuthnot Lane, and others, spoke of the rôle of alimentary sepsis in present-day surgery, and discussed the possibility of the ætiological importance of intestinal subinfection, as suggested by Adami and others, in many common diseases. He regretted the nomenclature used in many diseases, stigmatising as mere labels many of the terms used. So-called anatomical diagnoses were often very misleading. He dwelt on the importance of two ætiological factors in disease—heredity and strain or stress. In the term strain he included the different forms of medical sepsis, as revealed clinically by (*a*) oral sepsis, (*b*) the condition of the urine, and (*c*) the state of the bowels, as determined by simple clinical methods of examination. With these three points in

view he had had examined 11 patients with various complaints, occupying the beds on one side of his ward in the infirmary. In all cases dental sepsis was present, none of the patients being healthily supplied in quantity or quality of teeth. Bacteriuria was present in all the cases, and the examination of the second of two colon wash-outs, which should normally be clear and fairly free from micro-organisms, showed in all cases turbidity and marked infection. He made reference to the intestinal flora in health and disease, and pointed out some of the fallacies of the usual teaching in this matter, concluding with some remarks on treatment.

Exhibition of Cases and Specimens.

MR. J. W. DOWDEN and DR. MORRISON showed a case of fracture of the second, third, and fourth phalanges and division of the extensor tendons of the hand after operation and treatment by early active movement. After seven weeks there was full extension of the first and second fingers, fair extension of the third and fourth, and full strong flexion of all four fingers.

DR. W. A. ALEXANDER showed three specimens illustrating unusual causes of intestinal obstruction.

Reviews and Notices of Books.

ESSENTIALS OF ORAL SURGERY.

By V. P. BLAIR, A.M., M.D., F.A.C.S., and R. H. IVY, M.D., D.D.S., F.A.C.S. London: Henry Kimpton. 1923. Pp. 526. 32*s*.

THIS book has been written primarily for the dental student. The major operations receive brief mention, but the lesser surgical procedures which come within the scope of the dentist, as apart from the oral surgeon, are fully described. The recognition of surgical conditions receives full attention, for the dentist should be competent to recognise them even though he does not undertake their treatment. Much of the material is taken from the well-known text-book by Dr. Blair on the Surgery and Diseases of the Mouth and Jaws, but there is a good deal of fresh matter on fractures of the jaws, root resection, operations for cysts, and anæsthesia. One of the best features of the book is the account of fractures of the jaw, which embodies some novel methods of treatment. The authors advocate wiring as the routine treatment for most fractures of the mandible. By this they do not mean fixation by a wire passed through the body of the jaw, but fixation by wire ligatures twisted round the necks of the teeth and drawn tight. In this way the displacement is reduced and a perfect occlusion maintained. The mouth is of necessity kept closed, but apparently this does not involve any marked degree of discomfort to the patient, though the diet must be of a liquid nature. The method is not likely to supplant the metal cap splint, which has the great advantage of immobilising the fragments and allowing the mouth to be freely used, but it has one striking merit. The materials used to fix the fracture are simple, and in the possession of every practitioner. Brass binding wire, such as can be procured from any ironmonger, artery forceps, short scissors, and towel clips represent all that is needed, whereas any other form of apparatus requires, to be effective, the equipment and resources of the dentist. The surgeon who attempted to treat a fracture of the jaw without calling in the aid of a dentist would be unwise, but under conditions in which dental aid was not available this method should prove useful, and might well find a place in text-books of surgery. There is a good account of root resection, and though the authors are cautious as to the final results of this once popular operation, they allow it a modest sphere of utility. On p. 200 we are told that foot-and-mouth disease is caused by the bacillus of Siegel, a statement which is at least premature. There are few references to other authorities, and this omission might well be remedied in future editions.

The authors have produced a useful book, which ranks among the best of its kind, and should prove equally serviceable to dentist and surgeon.

CLINICAL MEMORANDA FOR GENERAL PRACTITIONERS. Second edition. By ALEX. THEODORE BRAND, M.D., C.M., V.D., and JOHN ROBERT KEITH, M.D., C.M., Medical Officers, Driffield Cottage Hospital. London: Baillière, Tindall and Cox. 1923. Pp. 375. 7*s*. 6*d*.

THIS is a carefully compiled record of clinical experience. Certain aspects of disease which get too little recognition in practice are emphasised. These include the importance of arterial spasm in such complaints as migraine and functional paralysis, and hyperæsthesia of the skin as a physical sign in organic disease. The possibility of counter-irritation of the vagus nerve in the many diseases in which it is or may be concerned—Graves's disease, pertussis, and spasmodic asthma—is an attractive subject. Muscular overstrain as a common cause of so-called rheumatism, Bier's methods of passive hyperæmia, and the value of yeast in septic conditions are also dealt with at unusual length. There is a useful contribution on the much neglected subject of incompatibility of drugs, and a larger one on the use of individual drugs which should be of considerable interest.

Certain rules here set out we cannot altogether recommend to the junior commencing practice, to whom the preface is partly addressed; in appendicitis, for instance, Abram's sign, in which the tenderness over McBurney's point is found to disappear when the skin over the seventh dorsal vertebra is frozen with ethyl chloride, will hardly prove of value; and to lay down that "if at the end of 48 hours the symptoms have not improved operation is indicated," is surely rather understating the case in favour of appendix abscess. Of the collection of aphorisms with which the book ends, it may be said that since most rules in medicine admit of 50 per cent. exception, they must be received with some caution. Nevertheless, this type of book is only too rare. If there were more coöperation between medical men in general practice, whose splendid opportunities for observation could thus be extended over ten times their present field, we might look forward to many similar useful contributions to the symptomatology and therapeutics of disease.

PRACTICAL ANÆSTHETICS.

Third edition. By H. EDMUND G. BOYLE, M.R.C.S., L.R.C.P. Lond.; and C. LANGTON HEWER, M.B., B.S. Lond. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. With illustrations. Pp. 187. 6*s*. 6*d*.

THIS book is much altered in the present edition. The most striking feature of the authors' tendencies in practice is their addiction to complicated methods and apparatus in preference to simple measures. It is very likely true that the best possible results are only to be obtained in certain cases through the use of these elaborations in the hands of experts, but we greatly doubt the wisdom of recommending them as first choice in a book intended for students and practitioners who are not specialists in anæsthetics. Take, for example, this recommendation from page 163: "Endo-tracheal anæsthesia . . . should always be employed in cases of strangulated hernia, intussusception, &c., where intestinal obstruction has occurred." We doubt whether most authorities would support this advice even if the anæsthetic is in expert hands. It can be of little service to the practitioner who often has to give anæsthetics in cases of this description, and who is very unlikely to possess, still less to be able to use, an endo-tracheal apparatus. A new chapter by Dr. E. J. McKesson gives clearly this authority's views on pulse-rate and blood pressure during anæsthesia, and their significance as regards shock, and the prospect of recovery therefrom. The frequent readings that he advises would have, no

doubt, great educational value when carried out in the hospital operating-theatre by students learning anæsthetics. With regard to pulmonary after-effects, the authors state it to have been shown that "most cases of post-operative bronchitis are embolic in origin." As the true origin of these post-anæsthetic complications is such an interesting and controversial question, the reference here would have been welcome. The authors are warm supporters of ethanesal, but, nevertheless, they should have given a place to Dr. H. H. Dale's criticism of the work, both of Cotton and Mackenzie Wallis, if the book went to press after Dale's paper was published.

The book is excellently produced, is easy to read, and has much of interest to the specialist in anæsthetics.

EMERGENCY OPERATIONS FOR GENERAL PRACTITIONERS.

By H. C. ORRIN, O.B.E., F.R.C.S. Edin., Surgeon, Ministry of Pensions Orthopædic Hospital, Newcastle-on-Tyne; late Civil Surgeon to the Third London General Hospital. London: Baillière, Tindall and Cox. 1923. Pp. 1065. 15*s*.

THE motives of the author in writing this book as set forth in the preface are much to be commended, but the execution of his plan leaves something to be desired. Any practitioner may find himself in such circumstances that an emergency operation, performed by himself, offers the only chance of life for his patient. Then he needs every help that can be given him and the most elementary facts of technique should be easily available. The experienced surgeon is apt to forget that what is so familiar to him as to appear unnecessary for mention may be of great importance to the unaccustomed operator. Instructions as how to find the cæcum in appendicitis operations, or where to look for the perforated gastric ulcer, or how to detect the viability of strangulated intestine have been omitted in this work, and the oversight is regrettable. The subject of intra-abdominal traumatic hæmorrhage is not treated, so that splenectomy is not described; under strangulated hernia the operator is instructed under certain conditions to resect and do an end-to-end anastomosis, but no account of this operation appears. Some recommendations are against the best teaching, for example, the use of nails or "other fixation medium" in compound fractures. On page 11 there is a serious printer's error, where the injection of 3½ oz. of 5 per cent. novocaine is said to be safe.

The inexperienced surgeon is not likely to get the help he wants from this book.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS.

Fourth edition. By JAY FRANK SCHAMBERG, A.B., M.D., Professor of Dermatology and Syphilis, University of Pennsylvania. London and Philadelphia: W. B. Saunders Company. Pp. 626. 25*s*.

Dr. Schamberg's book is by some considered to be one of the best of the smaller text-books of dermatology, and is exceptional in that it contains a detailed account of the eruptive fevers and the cutaneous complications of vaccination. This edition has been revised thoroughly, and the section on the treatment of syphilis entirely rewritten. The actual subject-matter is, on the whole, clearly written, and the sections dealing with differential diagnosis, in which the main points are often tabulated, are usually adequate. The directions for treatment form one of the best features of the book, and several useful formulæ are given. On the other hand, as a corollary of the irrational classification adopted, the sections on ætiology are for the most part unsatisfactory and often far from being up to date. Much confusion still seems to exist, even in the minds of expert dermatologists, concerning the so-called seborrhœic eruptions. In this book we find seborrhœic eczema, acne, sycosis, furunculosis, and carbuncle dealt with in the section on inflammations, although they are not considered together but are separated by other conditions with an entirely different ætiology; we find the seborrhœic form of alopecia described in the section on atrophies, and we find seborrhœa among anomalies of secretions of glands. The author still describes pityriasis simplex as "seborrhœa sicca," which is a contradiction in terms, and he does not even mention the so-called "bottle-bacillus." Seborrhœa and the seborrhœic eruptions are easily understood if considered in an intelligent manner according to their ætiology, and the confusion that has arisen concerning them is unnecessary and is now inexcusable. In the description of alopecia areata, the statement is made that "Sabouraud regards his microbacillus as the probable cause of alopecia areata." As a matter of fact, he abandoned this view years ago, and made a formal statement to that effect at the International Congress of Dermatology in London in 1913. No reference is made to his recent writings on this disease.

The author classifies epitheliomata of the skin into superficial, deep, and papillary varieties, but on what basis this classification is made is not clear. By the "superficial" type he appears to mean basal-celled growths, by the "deep" type squamous-celled carcinoma; the "papillary" epishelioma "may develop from the superficial or deep variety or from an ordinary wart." No clear differentiation is made between basal-celled and squamous-celled growths as regards their histological characteristics, their prognosis, and their treatment, and the histological description is inadequate. The very superficial, multiple form of basal-celled epithelioma is not described, nor is Bowen's precancerous dermatosis mentioned; there is, however, an illustration labelled "keratosis senilis, a precarious (*sic*) condition of the skin." Satisfactory classification of diseases of the skin is impossible until we know the actual cause of every one, but our knowledge is sufficient to warrant the adoption of a more rational arrangement than is found in this book, though it is right to say that many other text-books are open to similar criticism. Under the heading of "exsudationes-inflammations" Dr. Schamberg classes together a large number of diseases, many of which have nothing in common as regards their ætiology and pathology; moreover, some can hardly be regarded even as primarily inflammatory. What possible reason, for example, can be given for including in the same section eczema, lichen planus, lichen scrofulosorum, acne, psoriasis, gangrene, the various types of ringworm, scabies and eruptions caused by other animal parasites? How can tinea versicolor or ordinary scalp ringworm be considered as inflammatory? It is inconsistent to put lentigo and chloasma in the group of "hypertrophies" and vitiligo in that of "atrophies"; and to include leptothrix, piedra, and plica polonica in the latter group is surely ludicrous. Lastly, we find lupus erythematosus, syphilis, tuberculosis, leprosy, sporotrichosis, and actinomycosis classed as new growths. Such a slipshod method of arrangement detracts materially from the value of a systematic work.

The best part of the book is that dealing with the acute eruptive fevers; this occupies nearly a quarter of the whole volume, and the eruptions and symptoms of the various diseases are described in great detail. To small-pox alone 45 pages are given, and the illustrative photographs are really excellent, as, indeed, they are throughout. But it seems to us that the author would be better advised either to enlarge the volume, so as to bring the level of the purely dermatological part up to that of the section on the exanthemata, or to publish the latter separately.

JOURNALS.

BRAIN. Vol. XLVI., Part 11.—On Hepato-lenticular Degeneration, by Geoffrey Hadfield. Description of a case illustrating conclusively the existence of transition types between Wilson's disease and pseudo-sclerosis. Besides lesions of the putamen and the liver, there were focal lesions in the cerebral cortex,

characterised by prolific vascular new formation.—Rhythmical Convergence Spasm of the Eyes in a Case of Tumour of the Pineal Gland, by J. R. De Monchy. Besides the rhythmical spasm, there were found Argyll Robertson's sign, lymphocytosis of the cerebro-spinal fluid, and dystrophia adiposo-genitalis.—The Influence of the Cerebrum and Cerebellum on Extensor Rigidity, by W. P. Warner and J. M. D. Olmsted. Using cats for their experiment, the authors endeavoured to discover the exact location of the pathway from the cerebrum inhibiting tonic extensor activity. From the frontal lobe the tract passes through the mesial part of the internal capsule and below the level of the anterior corpora quadrigemina; in the greater part it then crosses to the other side of the brain stem to enter the cerebellum by way of the middle cerebellar peduncle.—The Sensory Activities of the Skin for Touch and Temperature, by David Waterston. Different thicknesses of skin were removed by blister, and it was found that when a distinct film of epithelium was left touch could be felt, but when more is removed, so that the surface is raw, no tactile sensation can be elicited. The author infers that the epithelium of the skin is the receptor organ for the sensation of touch. As a result of his investigations he finds that at single examinations hot and cold spots show a punctate arrangement, that on repeated examination the number of spots is greatly increased but that many of those formerly found no longer respond, that when a mild erythema is produced the sensation of heat can be obtained from practically all points of the affected surface. The punctate distribution of sensitive spots found at a single examination is explained by the view that in the skin there is a constant coming and going of activity in the different parts. To this he applies the term "fluctuation."—The "Law of Fluctuation" or of Alternating Periods of Activity and Rest in Living Tissues, by P. T. Herring. The assumption of this law appears to be a necessity in the case of all tissues that are subject to the law of "all or nothing." Graduation of activity in an organ made up of units subject to the law of "all or nothing," is due to a varying number of units being brought into action. The "law of fluctuation" demands an alteration of the units engaged. Examples are given of fluctuation in nerve, muscle, and glands.—Hysterical Pain, by R. G. Gordon and H. H. Carleton. In a closely reasoned paper the authors seek to show that hysterical pain is due to disintegration on the cortical level, and that the object of treatment must be to restore integration.

ANNALS OF MEDICAL HISTORY. Vol. V., No. 3. (New York: Paul B. Hoeber. $2.50.)—The first paper in this interesting number deals with a subject known to few—namely, anatomical fugitive sheets. These were single sheets of an engraved anatomical subject, sometimes with superimposed flaps, showing different layers of tissue, and Dr. Leroy Crummer has collected a vast amount of information thereon, having been fortunate enough to obtain some of these rare publications for himself.—Dr. Walter Mendelson writes upon Maimonides, his paper being inspired by the discovery by Dr. Solomon Schecter in a synagogue at Cairo of autograph letters of Maimonides and his son. Maimonides practised for a time in Cairo and Dr. Crummer gives a translation of a letter from him to a friend describing his strenuous daily routine.—Dr. M. Charlton continues his account of Medicine in Lower Canada under the French regime 1608–1759 and for some years later. This instalment contains an account of the St. Paul's Bay disease which seems to have been a virulent form of syphilis, and of another epidemic called the Molbay disease, apparently something of the same kind.—Other papers are one on the Life and Work of William Hewson, by Dr. G. H. Bailey; on the Earlier Methods in the Treatment of Syphilis, by the Editor, Dr. F. R. Packard; on Primitive Medicine in the Philippines, by Dr. A. Villegas; and on Hydrophobia Four Centuries Ago, by Dr. W. R. Riddell.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

IV.—TRANSFER OF PRACTICES: POINTS FOR THE PURCHASER.

BY COLIN M. OLIVER
AND
OSWALD A. HEMPSON.

Is there no physician there?—Jeremiah viii. 22.

IT can safely be stated that with comparatively few exceptions, every medical man has at some time in his professional career to consider the purchase of a medical practice, or a share in a medical practice. This is a matter of the utmost importance, and an initial mistake may have disastrous results to an unwary purchaser. The whole of the average medical man's professional education, from the time when he first commences his studies, is devoted to professional subjects. He receives no training or information in what may be called the business side of his profession, and as a consequence it is usually found that when he wishes to commence practice, he has very little idea how to set about acquiring a practice, what price he should pay, and generally what steps he should take to ensure that he is adequately protected from the pitfalls which await him, and which could be guarded against by the exercise of proper care and foresight.

In these notes it is proposed to deal with a few of the points which experience suggests may be of some assistance to members of the profession in approaching so vital a matter.

Types and Particulars of Practice.

The first point for decision is the type of practice to be acquired. Whether it is situated in the country or in a large town, and whether the patients are mainly drawn from the well-to-do or the poorer classes of the population, and whether there is to be particular scope for surgery or any particular branch of medicine, all raise different points for consideration.

Having decided upon the type of practice, the medical man's next step is to obtain particulars of such practices as are for sale of the type required. This is done by watching the advertisement columns of the medical press, or by application to medical transfer agents for particulars of any practices they may have upon their books. The particulars to be supplied from either source to enable the prospective purchaser in the first instance to satisfy himself that the practice offered for sale warrants further inquiry are shortly as follows: The annual gross receipts from the practice for the immediately preceding three years, the average number of confinements and fees receivable therefor, the scale of fees charged to private patients, information showing how long the practice has been established, number of panel patients, what appointments are held, and whether these are transferable. Full particulars should be obtained as to the residence available for the purchaser, and as to any separate surgery used in connexion with the practice, and it should also be stated whether the vendor has been in the habit of doing his own dispensing. Finally the price asked must be stated.

With this information before him the prospective purchaser will be in a position to judge whether or not the practice is likely to satisfy his requirements. If he considers that it will, he should arrange an appointment to interview the vendor. At this interview he will, of course, in the first place have regard to the neighbourhood, and make general inquiries as to the number of medical men already practising in opposition in the district, the probability or otherwise of extending the practice, the expense of running it, and whether it affords adequate opportunities for

the practice of any branch of medicine or surgery to which the applicant has any special leaning.

The residence and surgery accommodation offered should also receive special thought. The importance of this matter frequently receives insufficient consideration. The house comprises a very material item in the goodwill of a practice, and it is therefore of great importance that, if possible, the residence and surgery should be purchased, or failing this that a sufficiently long lease should be secured, to afford adequate protection to the purchaser. There have been cases where a purchaser has acquired a practice without sufficient security of tenure of the house, with the result that very shortly after the completion of the purchase he has received notice to quit. At the best in these cases he is put to the expense of finding other accommodation which may be quite unsuitable; at the worst he may be quite unable to find any accommodation, in which event he can say good-bye to the practice. Or a rival practitioner may acquire the house, and in so doing he will undoubtedly also take over some of the patients with the house.

Purchase Price.

If these preliminary inquiries prove to be satisfactory, the next, and all-important question of the purchase price has to be examined. The purchase price of a medical practice is invariably based upon a number of years' purchase of the average gross receipts. It is usual to work out the average gross receipts for this purpose from the three years immediately preceding the date of purchase. It is difficult to lay down any hard-and-fast rule as to the number of years' purchase which should be paid, as this must of necessity vary with the individual circumstances. A fair price to pay for a practice with an adequate introduction is one and one half years' purchase, but when purchasing a practice on the death of the incumbent, one year's purchase is as a rule the maximum amount which should be paid for an immediate succession. The value of a practice on a death vacancy, however, rapidly declines, and if more than a month has elapsed since the death of the prior incumbent, the price should be less than one year's purchase.

Partnership.

If the practice offered is a share in a partnership, two years' purchase is the usual price, but this again varies according to the class and character of the practice.

It is sometimes arranged that the purchaser of a share in a practice shall for a preliminary period of from three to 12 months be employed as an assistant in order that he may obtain a thorough knowledge of the practice. In this event the purchaser enters into an agreement with the vendor to serve him as assistant for the period arranged, and the agreement contains an option on the part of the purchaser to purchase a share in the practice on agreed terms, on giving notice before a specified date. It is felt by some that this is not a good method of being introduced, as the patients may for some time afterwards regard the purchaser as only an assistant, and there is a natural preference by patients to be attended by a principal.

Another and perhaps more frequent method is for the purchaser to enter into preliminary articles of partnership with the vendor for a period of from one to five years, and in this event the articles of partnership contain all the usual provisions, and, in addition, a right for the purchaser to buy the whole of the vendor's interest in the practice within an agreed period, or upon the prior death of the vendor. This is a useful method where an elderly practitioner is desirous of gradually retiring from his practice, and from the point of view of the purchaser has the advantage of giving him a prolonged and gradual introduction to the patients, but, not unnaturally, the purchase price under such circumstances would be higher than it would be in the case of an ordinary out-and-out purchase.

It is not proposed to deal at length in these notes with points which may arise on entering into an ordinary partnership, but it is well to mention one point of great importance, which is sometimes not regarded with sufficient care by a prospective partner, and that is the question of compatibility.

With the exception of marriage, there is no relationship which binds human beings together so closely as a partnership. It therefore behoves a would-be partner to study the character of the person or persons with whom he proposes to enter into such close contractual relationship, having regard to the fact that the success or otherwise of the practice will depend on how well the partners work together for the mutual good of the partnership. If there is any friction or disagreement between partners, or if there is any lack of confidence or goodwill between them, a position arises which makes it impossible for the practice to be worked to the best advantage, and may ultimately end in litigation or arbitration proceedings involving heavy expense.

Investigation by an Accountant.

Sometimes it is agreed that the purchase price shall include the vendor's stock of drugs, drug bottles, surgery fittings and effects, and sometimes these are taken over at a valuation. This point should be made clear in arriving at the purchase price. The purchaser should agree the purchase price with the vendor, subject to proper investigation of the vendor's books and practice records, in order that the vendor's representations as to the receipts of the practice may be verified. This investigation should be undertaken by an accountant, who should preferably be one who is used to the peculiarities of medical practices. A vendor who declines to afford facilities for investigation of his books should be regarded with suspicion. A purchaser who neglects to make the usual and reasonable investigation will find difficulty in obtaining relief from the courts if he discovers after completion of the purchase that the practice is not so good as he expected, when a little vigilance on his part would have been sufficient to disclose the true state of affairs. There is a maxim of law which every purchaser should keep well before him, and that maxim is "Caveat emptor."

It is inadvisable to have anything to do with a vendor who claims that he keeps no books, or that they do not show the full receipts "because of income-tax." In such cases, if the purchase is proceeded with, the purchase price should only be based upon such figures as can be proved.

Appointments and Panel Practice.

Difficulties may arise with regard to appointments held by a vendor. If the income from such appointments is included in the average gross receipts of the practice for the purpose of arriving at the purchase money, the purchaser should insist that, in the event of any such appointment not being obtained by him within a period of, say, six months from the date of the purchase, so much of the purchase money as is attributable to the remuneration from any appointment not obtained by the purchaser shall be refunded to him. The vendor in such cases will in turn insist that the purchaser should do his utmost to obtain all the appointments.

At the present time, when the future amount of the capitation fee payable under the National Health Acts is uncertain, a purchaser should require that in the event of the capitation fee being reduced within one year of the date of purchase, the purchase money should be calculated upon such reduced fee, and the difference should be refunded to him. Care should be taken by the purchaser in agreeing the purchase price that an allowance is made in respect of any reduction in the per capita fee under the National Insurance Acts, where the period covered by the average gross receipts of the practice for the purpose of arriving at the price includes such fees at a higher rate than that current at the time of purchase.

Adequate Introduction.

A purchaser should insist upon the vendor giving him an adequate introduction to the patients of the practice. What is an adequate introduction varies according to the different types of practice. It will, for instance, be longer in a scattered country district than in a closely populated industrial district. The introduction to a high-class practice has to be carried out very gradually and with the greatest tact. The purchaser should bear in mind in discussing this point that the introduction is really the only tangible part of the goodwill which he is purchasing. A clause should be inserted in the assignment of the practice to the effect that in the event of the agreed period of introduction being curtailed by the death or permanent incapacity of the vendor, there shall be a reduction of the amount of the purchase money, proportionate to the time by which the period of introduction is curtailed. In purchasing a practice on the death of an incumbent much may be done by way of introduction by the relatives of the deceased, and this should be stipulated for.

Great care should be exercised that any circular letter which is sent out is so worded as to give no offence to other practitioners in the neighbourhood. Such circular should not contain anything which savours of an advertisement or puff, and must only be sent to persons whose names appear upon the books of the practice as having been patients within the last three years immediately preceding the transfer of the practice.

If an adequate introduction is not agreed to by the vendor some reduction should be made in the purchase price by way of compensation. During the period of introduction it is usual for the expenses and profits of the practice to be shared equally between the vendor and the purchaser. An alternative is for the purchaser to bear all the expenses and receive all the profits, and to pay the vendor a fee at the rate usually paid to a locum tenens in the district. The purchase money should be paid as to part on the commencement, and as to the balance on the conclusion of the period of introduction.

Restraining Clauses.

In order to safeguard the practice to the purchaser he must insist upon the vendor entering into an adequate covenant restraining him from practising in any capacity within a given radius from the centre of the practice—usually taken from the practice house. The extent of the radius varies according to circumstances, but it should not be made wider than is reasonably necessary for the protection of the purchaser. It is useful to agree that any question, dispute, or difference shall be settled by arbitration. This method of settling disputes avoids the possibly harmful publicity which an action would entail.

It is usual for the stamp duty upon the assignment of a medical practice to be shared equally by the vendor and purchaser. In the absence of an express stipulation to this effect, however, it would fall upon the purchaser. He should, therefore, arrange with his vendor that this expense should be shared. Care should be taken that the assignment is properly stamped. If it is not so stamped, any party to it will have to pay the stamp duty and a penalty before the document can be used in any court of justice.

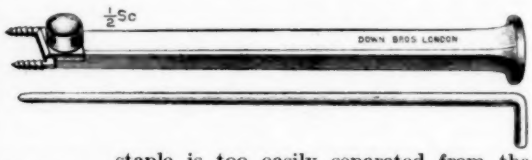
A Warning.

In conclusion, a few words of warning may usefully be added. A purchaser should not sign any definite offer to purchase until he has received his accountant's report. If he signs an offer it should be made subject to investigation and satisfactory report by accountants, and subject to approval of the necessary documents by his solicitors. A purchaser should not commence work in the practice until all his investigations are satisfactorily completed, and the necessary assignment of the practice is signed and completed. A purchaser should insist on the employment of a solicitor to approve the documents in connexion with the purchase on his behalf. It is astonishing how often medical men—who in their own profession would have nothing to do with unqualified persons—are content to allow agents and persons without any legal training to prepare legal documents for them. Experience has shown how essential it is that such documents should be prepared by persons properly qualified to do so. Questions involving difficulty and expense frequently arise upon the construction of badly drawn or incomplete documents. It then becomes necessary to seek legal advice, and to incur expense which might have been avoided if a solicitor had been consulted in the first instance.

New Inventions.

A NEW INSTRUMENT FOR USE IN THE RADICAL CURE OF FEMORAL HERNIA.

EXPERIENCE of a modified method of the Roux operation for the cure of femoral hernia in children by using the Jacöel bone staple has made me enthusiastic in its recommendation. The original staple-holder, however, when employed for the operation in adults, is found to be insecure, and the



staple is too easily separated from the holder. I have therefore devised the staple-holder shown in the illustration, the use of which renders the operation more satisfactory. The holder and the staples are made in two sizes—one set for children, the other for adults. The operation proceeds according to Roux, but the sac is utilised as in Macewen's radical cure for inguinal hernia. The ramus of the pubis should be well freed from the pectineus muscle. The femoral vessels should be well retracted outwards to ensure their immunity while the staple is being placed and driven into the bone. X ray examination afterwards will give the appearance of the hip-joint being penetrated by the staple, but there is no danger of this whatsoever. The staple-holder consists of a punch and a screw which, when tightened by a rod, presses on the free plate underneath and firmly grasps the horizontal bar of the staple, while the staple-points are accurately placed so as to enclose part of Poupart's ligament and hammered into the ramus of the pubis. A slight relaxation of the capstan screw by the rod releases the punch. The fluting of the staple prevents it again working loose, thus rendering the one criticism of the Roux operation inapplicable.

Messrs. Down Brothers, Limited, St. Thomas's-street, London, S.E. 1, are the manufacturers.

ALEX. MACLENNAN, M.B., C.M. Glasg.

ROYAL SOCIETY OF ARTS.—Among the many interesting lectures to be delivered this session are two remaining Cantor lectures on Jan. 28th, and Feb. 4th, at 8 P.M., by Dr. Eric Keightley Rideal on Colloid Chemistry. On Feb. 27th, at 8 P.M., Dr. C. S. Myers, F.R.S., will speak on the Use of Psychological Tests in the Selection of a Vocation. On March 12th, at 8 P.M., Mr. Alan A. Campbell Swinton, F.R.S., will give Personal Recollections of some Notable Scientific Men.

UNIVERSITY OF VIENNA.—The *Jewish Chronicle* states that an offer from Mr. Bosel, a Jewish financier, to meet all financial obligations incurred by the State on behalf of Vienna University has been accepted by the Austrian premier. The University budget should thus be restored to the pre-war standard and the University enabled to extend its operations without fear of financial difficulties. An official statement announces that there is no further danger of anti-Semitic disturbances at the University.

THE LANCET.

LONDON: SATURDAY, JANUARY 26, 1924.

SPIRITUAL HEALING: THE CURE AND THE CURÉ.

As an outcome of the Lambeth Conference of 1920 the Archbishop of Canterbury appointed a committee to consider and report upon "the use with prayer of the laying on of hands, of the unction of the sick and other spiritual means of healing." Under the chairmanship of the Bishop of Oxford the committee consisted of seven bishops and eight distinguished priests, with Sir CLIFFORD ALLBUTT, Sir ROBERT ARMSTRONG-JONES, the late Prof. W. H. RIVERS, Dr. WILLIAM BROWN, Dr. J. A. HADFIELD, and Dr. JANE WALKER. Their report has now been issued,[1] and is so commendably brief and straightforward that none of the many busy people whom it concerns have any excuse for neglecting it; more than half of the pamphlet is occupied with a learned discussion of the historical aspects of the question by Canon A. J. MASON and Dean ARMITAGE ROBINSON, and with some suggested forms of service.

The committee accepts without reserve the plain fact of experience that the mental attitude of a patient has a great deal to do with the effect and progress, sometimes also with the initiation, of the pathological conditions. The influence of mind on the body, known since the earliest times, was to some extent forgotten and overlooked in the materialistic rise of modern medicine during the nineteenth century. It is little to be wondered at that the flood of new and tangible knowledge which the morbid anatomists let loose led to a misconception of the position which has persisted till quite recent years, and indeed is still pretty widely prevalent. In orthodox medicine disease came to consist of alterations in anatomy or in perversions of physiology, and it became immoral to treat the symptoms which plainly constitute the disease as far as the patient is concerned. But patients are persistent, and there followed a period when medical men had to recognise that there were a good many people who resented the medical attitude of non possumus; though they presented no particular morbid anatomy they had symptoms which did not readily clear up under the rather unsympathetic treatment which they generally received. That time has, however, now passed, and everyone allows that any attempt to distinguish sharply between "organic" and "functional" disease is impossible. The "functional" element is present with every queasy stomach as well as with hysterical palsies, and we have got back again to the rational recognition that among the most important factors in the treatment of disease are the personalities of patient and physician. Thus pastoral medicine becomes of real importance. Extreme views have been held on both sides; it is well to recognise that it is as useless to deny the value to treatment in a case of typhoid fever of that sympathetic environment that promotes faith and confidence, as it would be idle to supply nothing but mental comfort to the victim of a broken leg. (The Minister of Health (see p. 209) hesitates to print a certificate of death alongside the other certificates on the insured person's pink paper, recognising the influence of a sinister suggestion.) The Archbishop's committee sets out clearly the three main lines of healing. With material methods they are least concerned; they point out, however, that their efficacy depends to some extent on the faith and suggestion which are always at work. In psychical methods—re-education, suggestion, psycho-analysis—they recognise a common ground between those who have the cure of bodies and those who have the cure of souls. They commend a fuller knowledge of modern psychology to the clergy, but emphasise their view that nothing like direct treatment should be undertaken except in close coöperation with a good physician. It is in the third department, devotional and sacramental healing, that the special province of the clergy lies, and the committee expresses the opinion that this can certainly achieve complete or partial bodily recovery, though admitting that it has done nothing which has not been done by psychotherapy without religion. But in this therapeusis the healing of the spirit is primary, the healing of the body secondary. Its object is the restoration of the whole man and his elevation to a higher level; this will often include his physical betterment as a by-product. It is not difficult to believe that the committee is right. The serene quiet of those who have achieved a faith in other-worldliness may lead at once to the neglect of any physical crosses which may have been put upon them and to the prevention of those ills which come from the fidgety restlessness of this life. Whether we can at present translate the cheerful serenity of belief into terms of blood pressure or digestion or adrenalin or not, no one will doubt its importance in the prevention and cure of disease.

As for practical procedure, the committee doubts the value of services of healing where considerable numbers of sick people gather together. Treatment is best undertaken individually, and in this prayer should form the first line of approach to be followed, if desirable, by unction (i.e., anointing with oil by a priest), or the laying on of hands (by a priest or a layman), or both. The recognition that particular persons have exceptional powers by the institution of licenced healers is not approved of. It should be noted that Sir CLIFFORD ALLBUTT and Sir ROBERT ARMSTRONG-JONES desire to dissociate themselves from the recommendation of the use of unction. It would be interesting to know their reasons; at the lowest valuation it might prove a useful method of suggestion.

[1] The Ministry of Healing. London: S.P.C.K. 1924. Pp. 43. 6*d*.

THE CAPITATION FEE INQUIRY.

THE Court of Inquiry appointed by the Minister of Health to determine the capitation fee to be paid to insurance practitioners as from Jan. 1st concluded its public sittings last Monday. We understand that the decision of the Court may be expected at an early date. It will be recalled that the original proposal of the Minister was that the capitation fee of 9*s*. 6*d*. should be reduced to 8*s*. 6*d*. for three years, or 8*s*. for five years. The claim of the doctors was that the fee should be from 10*s*. 4*d*. to 10*s*. 9*d*., while the approved societies asserted that a fee in the neighbourhood of 7*s*., certainly not more than 7*s*. 6*d*., was fully sufficient. The Minister admitted that it was a "most complex problem." The Conference of Local Medical and Panel Committees, adopting the recommendation of the Insurance Acts Committee of the British Medical

Association, definitely rejected the Minister's offer of 8*s*. for three years, and requested arbitration on the offer of 8*s*. 6*d*. for three years (failing arbitration this offer, too, to be definitely rejected). The doctors further declared that any agreement with regard to the capitation fee must be subject to a further agreement, which would have reference to the special circumstance of rural practitioners. In conveying their decision to the Minister, the profession expressed every wish towards a peaceful solution, and recalled that, throughout 1923, its representatives had striven for a settlement by consent, and for the cultivation of friendly relations with representatives of approved societies and others interested in insurance administration. The Minister at first refused arbitration, stating that in arriving at this decision he had "regarded his position as that of an arbitrator with the added responsibility of his ministerial duty." When, however, more than 90 per cent. of insurance practitioners placed their written resignation from insurance service in the hands of the Insurance Acts Committee, the Minister made a further proposal in alternative form. He offered either to pay 8*s*. 6*d*. for a period of five years, or to appoint an independent Court of Inquiry, whose finding should be binding on both parties for one year. The second alternative was accepted by the Insurance Acts Committee, and the Court was appointed on Dec. 12th, under the chairmanship of Mr. T. H. HUGHES, K.C. The Court was opened on Jan. 4th, and has held five public sittings. Under the suave direction of the Chairman, the proceedings have, on the whole, been marked by an atmosphere of courtesy and mutual consideration, and the occasional tendencies to introduce irrelevant recriminations have been checked. Most of the evidence showed an intelligent appreciation of the wider principles necessarily involved in the development of a medical service which affects more than one-third of the total population. Particularly significant was the unanimous expression of opinion that the medical profession, as a whole, had conscientiously fulfilled its responsibilities towards the insured population. A considerable weight of evidence supported the view that the insurance service had steadily improved since its inception, and that it offered more complete and efficient medical treatment than was provided under the earlier friendly society benefit systems. The evidence disclosed that the number of complaints which are made against individual doctors is surprisingly small, representing approximately one complaint from every 12,000 insured persons over a period of four years. Such criticisms as were offered were directed largely against the system of certification—the approved societies complaining that their funds are suffering considerable loss through lax certification; the doctors, on the other hand, contending that the existing certification rules are in many respects unnecessarily oppressive and difficult of application.

The evidence submitted to the Court represented four interests—the Ministry of Health, the medical profession, the insurance committees, and the approved societies. The societies who had determined to take no part in the proceedings reconsidered this decision at the last moment, and presented their case after the evidence of the other parties had been concluded. Happily, the fear of "undignified disputes between the doctors and the societies" which had been expressed by the Minister was not realised. Some of the witnesses in their anxiety to safeguard the funds of their societies appeared to ignore the principle that any great scheme of national health development must, in the end, rest upon a willing and satisfied medical profession. But, on the whole, the evidence of the societies while stressing, as it was bound to do, cases of alleged loose certification, acknowledged, in the main, the adequacy of the service which had been rendered to insured persons. The financial case of the societies was based on the pre-insurance contract rate of 4*s*., the contention being that the 7*s*. 3*d*. offered when medical benefit first came into operation represented an unjustified increase on the earlier club practice rate, and that all subsequent calculations—based as they had been on the initial 7*s*. 3*d*.—were excessive. The evidence of the insurance committees for England, Wales, and Scotland unanimously expressed the view that insurance practitioners, as a whole, had faithfully rendered their services to the insured population, and that, with few exceptions, the insured person receives as good a service as is given to other persons in similar positions who pay private fees. In expressing these opinions the committees claimed that, as the statutory bodies entrusted with the administration of medical benefit throughout the country, they were brought into close touch both with the doctors and the insured persons, and were in a position accurately to judge the day-to-day working of medical benefit. The case of the Ministry of Health was mainly statistical. It maintained that the reduction in Civil Service bonus since 1920, consequent on the fall in cost of living, offered a ratio of reduction which could fairly be applied to the capitation rate, and that on this basis, and having regard to the alteration in practice expenses, &c., the offer even of 8*s*. for five years represented a more liberal fee than the mathematics of the case would support. By applying a time rate equivalent, based on the assumption that each insured person requires on the average 3·5 services a year, the Ministry contend that a panel of 2000 insured persons would involve approximately eight visits and 16 surgery consultations each day of a working year of 300 days, and that this should occupy not more than one-half or at most four-sevenths of the doctor's time. The income resulting from such a practice on a capitation fee of 8*s*. 6*d*—£665 net for half-time work—is, in the Ministry's opinion, adequate.

The case for the medical profession was presented by the Insurance Acts Committee of the British Medical Association; the Medical Practitioners' Union gave separate evidence on behalf of its members. The case for the doctors lays stress on the principles that unless the remuneration paid for insurance practice is adequate, and equivalent to the rate of income derived from private practice, the best minds and most suitable personalities will either be attracted to other professions and callings, or will devote themselves to other branches of medical work; that while the profession is anxious that the service given to insured persons should be a full and complete general practitioner service, full recognition must be given to the extended conception of what such a service involves; and that a uniform capitation rate for the country must have regard to the best services and most arduous conditions of practice, and should not represent the lowest sum for which medical attendance on insured persons can be obtained. The doctors believe that the Ministry have overestimated the number of services which the practitioner can with justice to himself or his patients perform, and they dispute the correctness of the Civil Service ratio of reduction. Their statistical case is based on the very complete tables prepared by Prof. A. L. BOWLEY. The case for the doctors was presented with great skill by Dr. H. B. BRACKENBURY, and there will, we believe, be general agreement with the opinion expressed by the Chairman that the profession are fortunate in

having so able an advocate. Dr. BRACKENBURY was ably assisted by Dr. A. COX. Whatever may be the finding of the Court the medical profession will, we think, be satisfied that, in the hands of the Insurance Acts Committee of the British Medical Association, their case has been presented in no narrow spirit of bargaining, but has been based on a knowledge of the full nature of the responsibilities involved in a complete and efficient general practitioner service. The conviction is displayed that the service can be maintained at the high standard desired by the profession no less than by the Minister, only if the remuneration is adequate both on economic grounds, and as tending to encourage the progressive usefulness of the service to the nation.

AN ABRAMS INVESTIGATION.

THE January issue of the *Scientific American*, containing the fourth instalment of an inquiry into the Electronic Reactions of Abrams (E.R.A.), reached us at the same time as the announcement of his death. We gave last week a brief sketch of Dr. Abrams's career, and in our present issue Dr. Howard Humphris tells the story of his claims and how these claims are supported. Dr. Abrams gradually developed the theory that every illness to which man is heir is due to erroneous vibrations of electrons. He next constructed an instrument known as an "oscilloclast" by which these vibrations could be measured and reproduced, and it was then but a short stage for him to restore the normal vibration found in health. In doing so he was able to dispense with drugs, for he found that effective drugs possessed a like vibratory rate to the diseases for which they are effective. Two courses were open to anyone who became possessed of such momentous discoveries for the good of mankind. In the first instance the inventor might have demonstrated step by step the scientific principles underlying the mechanism by which, for instance, the placing of a dried specimen of blood in a box produces an audible change of percussion note or a palpable roughness of the skin in the reacting medium. To what extent the timbre of the percussion note is under the conscious or subconscious control of the percussor has been impressed upon several generations of clinical clerks, for there are well-known instances where clinicians of great repute and experience have been able constantly to find physical signs which were never confirmed by the pathologist. Dr. Abrams never attempted to set out the cogency of the sequence of events so as to satisfy the scientific observer. We understand, however, that he was occupied shortly before his death with working out a method of more objective control. The second course open to such an inventor would have been to ask the medical world, accepting for the moment his methods, to satisfy themselves that the results obtained thereby do actually correspond to pathological findings. The *Scientific American* found Dr. Abrams unwilling to submit to comparative blood tests on the ground that electronic and clinical diagnosis are two entirely different things. To those unable to confirm his results Abrams simply declared that their conception of his methods was akin to that of a "Swiss cheese-sandwich replying to questions concerning the nature and composition of celestial bodies." He deliberately removed his observations from a region where they could be controlled by those brought up in the methods and ideals of medical science. Their interest is psychological and now antiquarian.

INDEX TO "THE LANCET," VOL. II., 1923.

THE Index and Title-page to Vol. II., 1923, which was completed with the issue of Dec. 29th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers wishing to receive the Indexes regularly as published should indicate this desire.

Annotations.

"Ne quid nimis."

VITAL STATISTICS FOR 1923.

THE Registrar-General has issued a provisional statement of the figures for birth-rate, death-rate, and infantile mortality during the year 1923.

—	Birth-rate.	Death-rate.	Infant mortality-rate.
England and Wales	19·7	11·6	69
105 County Boroughs and Great Towns including London ..	20·4	11·6	73
157 Smaller Towns	19·8	10·6	68
London	20·2	11·2	61

The smaller towns are those with an estimated population in 1921 of 20,000–50,000. The death-rate for England and Wales relates to the whole population, but that for London and the groups of towns to the civilian population only. The birth- and infant mortality-rates for London have been provisionally corrected for transfers.

The Registrar-General remarks that the birth-rate of England and Wales as a whole is the lowest recorded, except during the war years 1917–19, while the death-rate and infantile mortality are the lowest on record. These provisional figures, which are not likely to require substantial modification, have been got out for the information of medical officers of health.

THE MENTAL HOSPITALS SERVICE.

WE have been taken to task by a friendly critic for the tone of our comments upon the reports of mental hospitals, and especially for the brief survey of these reports on p. 44 (THE LANCET, Jan. 5th). Allusion was there made to the difficulty of obtaining mental nurses. "Anyone reading this," our correspondent objects, "would think that such difficulties were peculiar to mental hospitals. Of course it is well known that general hospitals, fever hospitals, special hosp tals of all kinds, and cottage hospitals have the utmost difficulty in getting staff, and domestic servants are becoming an unknown quantity." We also alluded to the unduly large proportion of mental nurses, both male and female, who never obtain their certificate, inferring—our correspondent complains—that mental hospitals are to blame, "whereas the serious problem of the hour everywhere is the lack of ambition and of the capacity for steady work in the younger generation." It has been very far from our intention to belittle the work done at mental hospitals. In four instances during last year we took occasion to commend reports as exceptionally full and interesting; on three occasions reference was made to valuable research in progress, and in a dozen at least there were records of therapeutic innovations, amplified staff, and improved equipment. We recorded as noteworthy the practice of one large hospital in allowing large numbers of patients out on trial and on parole, in spite of the added anxiety and trouble involved. Dentists, surgeons, and ophthalmic surgeons had been appointed, in one case an instructor in occupational therapy; X ray plant, pathological laboratories, baths, new wards, convalescent homes, and out-patient departments had been instituted. Wherever such changes as these were put on record we noted and welcomed them.

We fully appreciate the difficulties with which medical superintendents of mental hospitals have to contend, and any adverse comment on the administration of these hospitals which has been made in our columns has been directed towards the removal of some of these difficulties as an essential condition of improved treatment for the insane. It is not within the power of the medical staff to alter them; that power is in the hands of lay committees, and ultimately in those of the ratepayers. Defects in the

service are capable of remedy only by increased expenditure, whether on buildings, salaries, equipment, on the means of recreation, or on food and clothing. Until money is made available for these purposes it is our duty to indicate the directions in which it is needed. The only particular in which the work of medical superintendents has been criticised is not immaterial to the present point at issue. The criticism was this: "It is perhaps not out of place to comment on the very brief and formal style which characterises these reports; it is frequently difficult to gain from them any clear picture of the work which it is their purpose to record. This must always appear as a missed opportunity of enlightening the public, and a few paragraphs which do no more than retail the main statistics in another form, and record minor structural changes and formal acknowledgments, can hardly be said to do justice to the vast amount of patient and careful work performed by the staff of such institutions."

How can the successful features of the year's work at a mental hospital be appreciated when such information is absent from its reports? Further than this, a number of mental hospitals publish no reports at all, and the last available report of the important and numerous institutions under the control of the London County Council was issued in 1922 and dealt with the year 1920. The public and the medical profession are surely entitled to be adequately informed as to the work of these hospitals, whose upkeep is a large item of public expenditure, and whose administration affects the welfare of many thousands of patients.

BLOOD TRANSFUSION IN JAPAN.

A JAPANESE investigator, Dr. Takeo Torii, has recently published in German an account of experiments upon the problems connected with blood transfusion conducted by him during three years at the University of Fukuoka.[1] His investigations divide themselves into two series: (1) experiments on animals with transfusion of incompatible blood, and (2) clinical observations on transfusion of compatible blood in human beings. The results in general do not furnish much information that is new, but they, at any rate, confirm the observations of others. Attention may be drawn, however, to a few points of interest. It has often been noticed that there is an immediate increase, in the recipient's blood, of the red cells and hæmoglobin content, but that a fall occurs soon afterwards. Dr. Torii has found that this is to be accounted for by a temporary "hydræmia" or dilution of the blood which takes place within 3 to 15 hours of the transfusion, both of compatible and of incompatible blood. This observation is of some importance in the interpretations of the rather anomalous results that are sometimes obtained in attempting to estimate the effect of blood transfusion by determining the red cell content. Dr. Torii has also shown that transfusion of incompatible blood produces in the recipient an invariable leucocytosis, in which all the varieties of cell participate. Abnormal white cells also appear and phagocytosis of the foreign red cells can be observed. If the production of abnormal cells be taken as an indication of the degree of poisoning produced, then Dr. Torii has been able to infer that the intravenous injection of foreign red cells is much more powerful in its effect than is the injection of foreign plasma. Some observations on the effects of injecting defibrinated blood are also interesting. The re-infusion of blood from the peritoneal cavity in cases of intra-abdominal hæmorrhage has been often practised in recent years, but some fatalities have been recorded. Dr. Torii has found that the immediate transfusion of the recipient's own defibrinated blood is highly injurious; but that after the lapse of a few hours, or after warming the blood, this effect is not produced. Dr. Torii's clinical observations are perhaps less interesting than those made in the laboratory. He has found the use of citrated blood to be the simplest and safest method. As regards donors, he emphasises the necessity for a very careful choice when repeated transfusions are being given, owing to the fact that any incompatibility there may be between two individuals is heightened by transfusion. Attention is thus again drawn to the fallacy of supposing that the blood of group IV. donors (the "universal donor") can be given indiscriminately. Dr. Torii claims, indeed, to have found that red cells of group IV. are often agglutinated by the serum of group II. blood, though the reaction is much slower and less pronounced than between the groups usually regarded as incompatible. This observation, if correct, is sufficient by itself to dispose of the "universal donor" theory and to explain the slight reactions that are sometimes found to follow the transfusion of theoretically compatible blood. Dr. Torii's list of 231 references is valuable, as it contains many German contributions not recorded by other authors.

[1] Mitteilungen aus der medizinischen Fakultät der kaiserlichen Kyushu-Universität, Fukuoka, Japan, 1923, Band vii., pp. 137–294.

THE MECHANICAL TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS.

AT a meeting of the Manchester Medical Society held on Jan. 9th Mr. Harry Platt opened a discussion on the mechanical treatment of acute anterior poliomyelitis. He pointed out that it had long been recognised that the serious disablement resulting from this disease was in many cases dependent on the existence of deformity rather than on the paralysis. Although it was possible at a late stage to correct multiple contractures by surgical measures, and to make comparatively helpless children walk in suitable appliances, the surgical problems afforded by these patients would be much simpler if all deformity had been prevented from the first. In spite of genuine advances in the treatment and handling of poliomyelitis in its earliest stages, a mass of neglected cases were still encountered. In geographical areas served by a special hospital, such as exists now in Shropshire, Oxfordshire, and the Lake country, epidemics of acute poliomyelitis could be adequately provided for and the early mechanical treatment of each individual case could be instituted. In the cities, however, the conditions were not so favourable. Delay in applying efficient early treatment is often due to the difficulties of establishing a diagnosis. The clinical syndrome of the early stage of acute poliomyelitis does not appear to be familiar enough to the practitioner of medicine; in enumerating the early symptoms Mr. Platt laid emphasis on the pain and tenderness which are constant features of the initial stage. The treatment to be adopted in the acute stage must be founded on a clear appreciation of the pathological picture of the disease and of the symptoms which such morbid changes evoke. In this condition there is opportunity of applying at the earliest moment classical surgical principles: (1) Rest, for the acute inflammatory lesion. This implies the protection of the inflamed nerve cells from every form of stimulus. (2) Prevention of deformity. (3) The continuous relaxation of completely paralysed muscles. According to Mr. Platt, these aims are best achieved by the immediate immobilisation of the child in the recumbent position in an apparatus which maintains fixation of the spine and limbs. There are two methods of effecting this, either the use of a plaster-of-Paris bed, or a well-padded frame of the double Thomas or Bradford type. As in the early stages the paralysis is often diffuse, standardised positions may be adopted in which, with certain exceptions, no particular groups of muscles are unduly favoured. The hips and knees are kept extended, and the feet placed at right angles. The position of the upper limbs should be right-angle abduction at the shoulder with the forearm flexed at the elbow and supinated, and, where necessary, the wrist in dorsiflexion. Once the patient is comfortably installed in his shell he should be subjected to the minimum amount of disturbance,

and this period of complete immobilisation should outlast the stage of pain and tenderness. With the onset of muscle recovery the degree of fixation of the body should be lessened, and the patient gradually brought into the sitting position; the affected limbs should be maintained on splints or in the remains of the plaster shell for a much longer period until walking is attempted. Further, the splints would be worn as night splints for at least another two years. When these precautions are taken the task of re-education which follows the stage of immobility becomes much easier.

YEAST AND CONSTIPATION.

YEAST is an old remedy for constipation, and some recent investigators have thrown doubt on its efficacy. However, in the current number of the *Journal of Pathology and Bacteriology* (vol. xxvii., p. 42) Dr. Louis Gross, of Montreal, working in London with a Beit fellowship, describes experiments on rats of a very striking character. Animals were fed with normal diets and diets deficient in A and B vitamins, and the activity of the alimentary canal was determined by giving a dose of charcoal and timing its first appearance in and its final disappearance from the stools. In one rat on a normal diet the charcoal appeared in nine hours and had entirely disappeared in 65 hours; the same animal on the same diet without marmite (an extract of yeast) showed the first appearance of charcoal in 12 hours, and it was still present after 16 days. Afterwards the same animal on the full normal diet with marmite got rid of the last of the charcoal in five days. Similarly a rat on normal diet passed 13 or 14 scybala a day, which fell to two or three a day after a fortnight without marmite; administration of small quantities of marmite soon restored the normal number. Dr. Gross points out that the delay in the passage of the charcoal cannot be explained by a lower consumption of food owing to the loss of appetite characteristic of deficiency in vitamin B, since the intake during the normal period was limited to the amount eaten during the period of B deficiency. The action of marmite does not seem to be direct and local, since in experiments on rats' intestine in vitro it had, if anything, an inhibitory effect on motion. Similar experiments on animals fed on diets deficient in vitamin A showed a marked acceleration of the passage of food through the alimentary canal. The author could detect no definite anatomical or histological changes which could be correlated with these results, failing to confirm both Colonel R. McCarrison's description of changes in Auerbach's plexus in B deficiency and Dr. W. Cramer's description of mucosal atrophy of the intestine in A deficiency. But he has adduced a good deal of evidence connecting intestinal stasis with absence of vitamin B in the diet.

MEDICAL HYDROLOGY IN ENGLAND.

IN our correspondence columns will be found an influential letter containing definite proposals for the promotion and teaching of medical hydrology in this country. These have been laid before the Ministry of Health, for the committee in charge regard as essential the recognition of hydrology and of the spas by the Government. University teaching alone cannot give the necessary stimulus and scientific coördination. The current issue of the *Archives of Medical Hydrology* recalls the large scale on which physical remedies were used for disabled men; this fine service of British spas has perhaps hardly been sufficiently recognised. A course of lectures on medical hydrology was given last year at London University, and a preliminary circular has just been issued of the next course to be held in the week commencing May 5th, with a study tour to Bath and Cheltenham. Lectures are also contemplated at provincial universities. Efforts to secure teaching of this subject in England date back many years. Some members of the present committee coöperated in 1897 with the late Dr. Theodore Williams and Dr. Alfred Havilland in circulating to the medical schools a programme of instruction in hydrology and climatology. A committee, including leading spa physicians and many other well-known names, laid a memorial in 1914 before the Senate of the University of London, detailing the elaborate teaching in foreign universities and asking for central teaching in London and a chair of hydrology and climatology. The war intervened to prevent this scheme maturing. The present committee is the fourth that has handled the matter, and we hope that its present proposals will meet with acceptance.

CANCER DEATH-RATE IN IRELAND.

THE quarterly return [1] of the Registrar-General of the Free State for the third quarter of 1923 shows a commendable regard for continuity of records, now that Irish vital statistics need to be studied in two separate official reports, for appended to a statement of deaths and causes of death in each of the 56 urban districts in Leinster, Munster, and Connaught, and the 10 urban districts in Ulster which are within the Free State, corresponding figures for the cities of Belfast and Londonderry are given by courtesy of the Registrar-General for Northern Ireland. Perhaps at the moment the most interesting death-rate is that from cancer which was only 71 per 100,000. This is a crude death-rate not corrected for age- and sex-distribution of population. The average age of the population of Ireland is greater than that of England, and other things being equal its cancer death-rate should be higher than that of England, whereas the official figures show a much lower cancer death-rate. This is no new phenomenon, the standardised death-rate from cancer in Ireland many years ago having similarly been increased by correction for age- and sex-distribution of population. Even when this correction is made cancer appears to be less fatal in Ireland than in England: and further investigation into the local incidence of cancer in Ireland, and concurrent inquiry which might elucidate inter alia whether to a considerable extent differences in official death-rates are ascribable to variations in accuracy of medical diagnosis and of medical certification, would be likely to elicit valuable information in other respects. As bearing on completeness of certification, it may be noted that medical certification is commonly more exact for deaths in institutions. Such deaths from all causes numbered 28·4 per cent. of the total deaths in Ireland in the second quarter of 1923, while in Dublin they numbered 45·1 per cent. of the total number.

COLLOID PHENOMENA IN BACTERIOLOGY.

To the fifth report on colloid chemistry of the Department of Scientific and Industrial Research,[2] Dr. E. K. Rideal contributes a suggestive article upon certain phases of bacterial activity. He begins by discussing the phenomenon that bacterial growth in fluid media is self-limiting; when, however, any culture has ceased to progress and the bacteria are separated by centrifuging, these are still capable of growing in a new medium, whilst, on the other hand, the old medium is still capable of providing pabulum for a fresh inoculation of the same bacteria. It is suggested that this is due to the inhibition of the original bacteria by surface adsorption of products of growth such as alcohols, soaps, or fatty acids. Bacteria in a fluid may be regarded as forming a colloidal system and with the large surface development of such a suspension, adsorption at the interface between the two phases becomes an important factor in the distribution of substances in solution. Any substance lowering the interfacial tension—in accordance with

[1] No. 239. Edson and Son, Ltd., 40–41, Lower Sackville-street, Dublin. Price 6*d*.

[2] British Association for the Advancement of Science. Fifth report on Colloid Chemistry and its general and industrial applications. London: H.M. Stationery Office. Price 2s. 6d.

a well-known physical law—will be distributed in greater concentration at the interface in question, in this case the bacterial envelope, than in the suspending fluid. Dr. Rideal suggests that the self-limitation of bacterial growth depends upon the production by bacteria of metabolic products, which have this effect upon the surface tension and thus become concentrated upon the bacterial surface; these substances, being in their way excretory products, are unfavourable to the organism's growth and nutrition, which finally ceases to progress. Upon removal to fresh medium, the equilibrium is upset and the adsorbed substances are to some extent desorbed, allowing growth to occur again. Fresh bacteria can grow in the old medium for a short time because the concentration of these substances in its bulk is not sufficiently high to be inhibitory. It is not possible to put this hypothesis to experimental proof by measurement of the interfacial tension between bacteria and medium, but it is easy to measure the medium air interfacial tension which in many cases will probably have a value relatively similar. It is found that with a range of antiseptics, from thymol to phenol, the effect upon the surface tension is accurately correlated with antiseptic activity, which suggests the presence of an adsorption factor on these lines. The question of the selective adsorption of the various products presented to bacteria is, in its ultimate analysis, a chemical one, depending upon the presence in the bacteria of reactive groups capable of combining with those available in the dissolved substances of the circumambient fluid.

CONJUNCTIVAL INFECTION WITH TUBERCLE.

IN 1913 A. Calmette and his fellow workers drew attention to the possibility of infecting guinea-pigs with tubercle bacilli by the conjunctival route, and it was thought that a clue had been found to the genesis of the cervical adenitis of childhood. Though the virus transmitted through the conjunctivæ spread to the cervical glands, the tracheo-bronchial glands, the lungs, and abdominal viscera, lesions at the level of the eye itself were never observed. We alluded briefly last week to similar investigations conducted by Prof. S. Lyle Cummins with results that did not in every respect tally with Calmette's. Prof. Cummins found [1] that a definite local inflammatory reaction in the eye itself usually occurs but is very late in appearing. Of two guinea-pigs infected by the conjunctival route, one (No. 125) was a normal animal, and the other (No. 123) had been inoculated a month earlier with tubercle bacilli of low virulence. In this animal acute conjunctivitis developed a day after the conjunctival instillation, whereas in the case of No. 125, the conjunctivæ did not become inflamed until the third week after the instillation. It would seem that the rapid onset of acute conjunctivitis in the animal already infected with tubercle bacilli of low virulence was due to an allergic state induced by the earlier infection. Comparisons made between the effects of subcutaneous injection and conjunctival instillation of tubercle bacilli brought out one very interesting point. Among the guinea-pigs given subcutaneous injections of varying quantities of tubercle bacilli, there was no appreciable difference in the reaction, whether 2000 million or only 2000 bacilli were injected. But when the bacilli were introduced by the conjunctival route, the course of the disease varied according to the dose; it was rapid and acute when a concentrated emulsion of tubercle bacilli was instilled, and chronic when dilute instillations were given. These observations give support to the hypothesis that in the tuberculosis of man the massiveness of infection plays an important part. The condition of the child whose only apparent defect consists of enlarged cervical glands may be compared with that of guinea-pig No. 125 which seemed to be in excellent general health six months after conjunctival infection. When killed it was found to have lesions strictly limited to the infected eye and the cervical glands, which were fibrotic and contained limited areas of caseous degeneration. Prof. Cummins suggests that artificial per-conjunctival infection should help to elucidate many of the phenomena of tuberculous infection and resistance, although the constant association of eye lesions with the cervical adenitis in guinea-pigs indicates that the tuberculous processes in the guinea-pig and man are not strictly similar. And his suggestion is worth following up.

[1] Tubercle, January, 1924.

THE TREATMENT OF NEURO-SYPHILIS.

THE issue in the discussion before the Medical Society for the Study of Venereal Diseases, reported in THE LANCET of last week, on the diagnosis and treatment of neuro-syphilis, turned largely on the value of tests applied to the cerebro-spinal fluid as a guide to prognosis and treatment. Dr. Gordon Holmes, who opened the discussion, contended that the diminution of the cell content often quoted as a sign of improvement might be due to repeated lumbar puncture, since some of the cells in the lower part of the cord are drawn off at each puncture, and the proportion found in the later counts thus reduced. Dr. Holmes confessed to have made more than one serious mistake through being guided by changes in the cerebro-spinal fluid. As to treatment he maintained firmly that the study of this fluid formed no reliable guide to the efficiency of treatment or prognosis in neuro-syphilis, except in interstitial syphilis. Colonel L. W. Harrison, as President of the Society, took up this point in a reasoned comment on Dr. Holmes's opening address. He expressed himself as anxious to accept what he understood to be Dr. Holmes's view that lumbar puncture was not so necessary for the control of treatment of cases of syphilis as our American colleagues would have us believe. Many held that no case of syphilis could be considered to be properly managed unless the treatment were controlled by examinations of the cerebro-spinal fluid, and this view entailed the difficulty that, with all precautions, lumbar puncture was apt to be followed by severe headache, which raised great practical difficulties for the ordinary patient. Perhaps the point raised by Dr. Holmes as to the effect of intensive treatment on the development of the neuro-recidive might be cleared up by the experience in treatment centres as to the number of cases of neuro-recidive which they have seen amongst soldiers treated for syphilis during the war. There were approximately 100,000 cases of syphilis treated in military V.D. hospitals in that period, most of them by a short, rather intensive course. Through the medium of this Society, statistics on this point might be collected during the next few years from medical officers of treatment centres, neurologists, and practitioners who had come across cases of neuro-recidive amongst soldiers treated for syphilis in the war years. Particulars of the actual treatment administered would be necessary, as well as of the nature of the present disease.

POST-OPERATIVE DENTAL TREATMENT OF CLEFT PALATE.

A RECENT paper [1] by Mr. A. T. Pitts on the Orthodontic Treatment of Cleft Palate Subsequent to Operation contains much information that will be found useful, not only by dentists but by surgeons and general practitioners. Mr. Pitts thinks that some surgeons have not realised that the coöperation of the dentist is absolutely necessary to get the best results in the treatment of cleft palate, and there is doubtless much truth in this contention. Surgeons who are accustomed to operate much for this deformity know how difficult it often is to get parents to see the necessity for dental treatment and for training in articulation, in the case of children who have

[1] British Dental Journal, Dec. 15th, 1923.

undergone operations for cleft palate. They are too apt to imagine that as soon as the cleft has been closed by operation there is nothing left to be done. Mr. Pitts divides dental deformities in cleft palate into two groups: those which are due to the cleft palate itself and are indeed a part of the condition, though not manifest until the teeth erupt; and deformities of the dental arch which result from the operation and do not exist in a case of cleft palate which has not been operated on. He is fully justified in his statement that dental irregularities after operation, when occurring in the molar and premolar regions, are due to the operation, while irregularities in the incisor region are an original defect of the congenital failure of growth, but are apt to be increased as the result of operation. At the Hospital for Sick Children, Great Ormond-street, Mr. Pitts has had many opportunities of studying the results and comparative merits of the two principal types of operation for cleft palate performed in this country—namely, the Langenbeck or Fergusson operation, and the so-called "flap" operation, usually associated with the name of Sir Arbuthnot Lane. The two operations lead to different types of dental deformity which can be readily recognised. Good illustrations of both are given. It is interesting to note the author's conclusion that the irregularity after the flap operation is generally more severe than that caused by the Langenbeck operation, and being unilateral is less amenable to dental treatment than the bilateral contraction following the Langenbeck operation. In this opinion he will be supported, we think, by the great majority of surgeons who have had opportunities of seeing the actual results of both operations. Mr. Pitts discusses fully and fairly the aims, objects, possibilities, and limitations of orthodontic treatment of cleft palate subsequent to operation, and deals at length with the technical means to be employed. Several striking illustrations are given of dental deformities before and after dental treatment at the hands of himself and his colleague, Mr. William Ovey. The article, which is the result of much painstaking research and observation, will repay careful study by dentists and by surgeons who are interested in this small but difficult branch of work.

"PUNCH" AS AN ANTHROPOLOGIST.

AT the second social evening of the session on Jan. 16th Sir Arthur Keith, F.R.S., delivered an entertaining address on this subject to the Royal Society of Medicine at 1, Wimpole-street, in place of Dr. Arnold Chaplin, who, as had been previously announced, was unable to be present through illness. Sir Arthur Keith said that he was not going to consider *Punch* as a humorist, but would speak of him as a sober man of science—in other words, as an anthropologist. All of us, he said, became anthropologists as soon as we ceased calling every one "dada," and our scientific attainments increased at the school age to the point of recognising friends and enemies from the back or the front. Later, about 15, we could judge the ages of the people we saw, and so on. It was with anthropology of this sort that the speaker wished to deal—a living and practical science, not a dry-as-dust measuring of skulls and angles. And of all British text-books on this subject, he added, the best was the files of *Punch*. Considering the *Punch* artists as being in dead earnest, and unconcerned with the jokes attached to their drawings, Sir Arthur Keith showed on the epidiascope many examples of their work with which he illustrated his subject. The first series consisted of a set of studies of father and son by many different artists, in which the immature features of the son—small nose, slight eyebrow ridges, thin neck, &c.—were shown fully developed in the father, while the type remained unchanged. He then showed how age was indicated on a face, and mentioned that the nose told age changes as well as any other feature up to 55 years of age, but mobile parts, the eyelids, eyebrows, and lips, showed most change. In the course of facial development the nose often seemed to follow a system of growth on its own—that feature might be well-developed, while the forehead and chin remained infantile. Per contra, in a face with powerful jaws and heavy eyebrow ridges the nose might be small and weak. The lecturer then gave an interesting comparison of the primitive broad physiognomy and the modern long narrow face with open orbits. The modern shape, typical in the Englishman, did not probably exist, he said, before Roman times. *Punch* was very fond of contrasting the long face with the broad face—as many drawings exemplified. After a series of pictures illustrating various forms of English round heads, short and long, Sir Arthur Keith showed Mr. Punch himself to have a typically square Teutonic cranium. The chair was taken by Sir William Hale-White, President of the Society, who moved a hearty vote of thanks to the lecturer.

PROF. H. J. HAMBURGER.

BY the death of Hartog Jacob Hamburger on Jan. 4th Dutch science has suffered a severe loss, for Prof. Hamburger was not only a first-rate physiologist, but a chemist who opened up new vistas of knowledge. A pupil of Boche, Mulder, and Dibits, before graduating in mathematics and physical science, he became assistant to Donders, and this contact with medical biology was decisive for his further career. Within six years he obtained his second doctorate in medical science. He then was appointed lecturer in physiology and pathology at the Government Veterinary School, and in 1901 professor of physiology at Groningen University, a chair which he held until his death. It was his happiness to plan and to see erected a new physiological institute, which was admired by physiologists from all over the world on the occasion of the Ninth Physiological Congress, at which Hamburger presided. Among his publications the best known were: "Osmotischer Druck und Ionenlehre in den medizinischen Wissenschaften," and "Physikalisch-chemische Untersuchungen über Phagocyten." His discourse on Permeability in Physiology and Pathology, delivered in London[1] under a scheme of lecture exchange, summed up the results of a life-work on the borders of cellular physics. Much of this work of Hamburger and the group of assistants whom he attracted is accessible in the "Researches from the Physiological Laboratory of the Groningen University," published in 1920.

Hamburger took his full share in national and international scientific intercourse. In 1896 he became a member of the Dutch Royal Academy of Science, in 1909 he received an honorary doctor's diploma at Aberdeen, in 1922 a similar honour at the Veterinary University of Utrecht. In 1908, on the twenty-fifth anniversary of his doctorate in chemistry, a special number of the *Biochemische Zeitschrift* was devoted to his work. At the invitation of Baltimore University he inaugurated in 1922 the Dohme-Foundation. His colleagues in all parts of the world will keep in thankful remembrance "the little kind artless scholar," as he was called in Groningen.

THE new Minister of Health, Mr. John Wheatley, has had opportunity during the course of his career for acquiring close knowledge of some of the most important problems with which he will be called upon to deal. Until the age of 22 he worked as a coal-miner, and since then has had administrative experience in Glasgow and in Lanarkshire. His strong feeling on the need of maintaining adequate support for maternity and child-welfare and for measures directed against tuberculosis was made manifest in a stormy debate in the House of Commons last summer, and his interest in the housing question may be judged from the fact that he is President of the Scottish Labour Housing Association. We wish the new Minister good fortune in furthering the aims he has at heart.

[1] THE LANCET 1921, ii., 1039.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LV.—TREATMENT OF ACUTE OBSTRUCTION DUE TO GROWTHS OF THE COLON.

IF rectal cases are excluded, one of the commoner causes of acute intestinal obstruction, when it occurs in patients of middle or advanced age who have long experienced abdominal discomfort, is a neoplasm of the colon. The growth is usually a carcinoma situated in the pelvic colon, the beginning of the ascending colon, or one of the flexures; growths in the first-named site being by far the most common. The type of growth varies to some extent with its position, growths in the cæcal region forming large exuberant masses within the cavity of the bowel, whilst a narrow constricting fibrous ring is usually found in the pelvic colon. These growths differ from carcinomata found elsewhere in certain respects: (1) They grow more slowly and are confined to the limits of the bowel for a long time; (2) they are subject to degenerative changes; (3) they do not infect the lymphatic glands in the early stages; and (4) they produce metastases in distal parts only quite late in the disease. A theoretical consideration of these facts leads to the conclusion that malignant disease of the colon, as compared with carcinoma elsewhere, is a particularly favourable disease for operation, and this is amply confirmed by the results of actual practice.

Symptoms.

These patients give a few months' history of malaise, anorexia, and vague abdominal discomfort. There is usually some loss of weight, but this is not a marked feature. Attacks of wind with colicky pains occur with some exaggeration, for the time being, of the gradually increasing constipation which may be, but is not necessarily present. The discharge of fæcal-stained mucus (false diarrhœa) and blood, characteristic of rectal cancer, is uncommon. The actual attack of acute obstruction occurs rather suddenly and is often preceded by a few days' increased difficulty with the bowels. Severe and diffuse abdominal pain with some nausea or actual vomiting indicate the beginning of the crisis. One loose motion may occur as the bowel distal to the growth empties itself, but after this constipation is absolute and no flatus is passed. The patient looks ill, with sallow complexion, dark hollows round the eyes, sunken cheeks and zygomatic fossæ, and foul tongue and breath. The pulse is frequent and of poor volume, the temperature possibly subnormal. If vomiting occurs, bile-stained or fæculent-smelling fluid floods up into the mouth with little apparent effort. The abdomen is distended and, if the walls are wasted, coils of intestine may be seen undergoing irregular peristaltic movements which possibly subside always in one situation, the actual site of obstruction. The abdomen differs from that of a general peritonitis in that it is neither rigid nor tender. There may be local rigidity and tenderness over the site of the growth, but the latter is seldom palpable through the distended abdomen. Occasionally a large lump, *freely movable from side to side*, may be detected in the cæcal region. The preceding few months of abdominal discomfort culminating in the sudden attack of absolute constipation, which cannot be satisfactorily relieved by repeated enemata (ox gall ʒss ad Oj or turpentine ʒj ad Oj are the best to employ), makes the diagnosis of an organic obstruction certain. *In these circumstances an aperient should never be given.*

If rectal examination and careful inspection of the hernial orifices are negative, then a diagnosis of malignant disease of the colon is probably the correct solution of the problem. It must be remembered, however, that very similar symptoms, usually of longer duration, are produced by papillomata, often multiple and occurring in groups, and especially liable to produce attacks of recurring intussusception of the gut. Particular attention should always be paid to the femoral rings, in which situation it is easy to overlook, and, indeed, sometimes impossible to detect, a small strangulated piece of intestine in a stout patient.

Principle Guiding Treatment.

The essential thing to remember in the treatment of these patients is that no matter whether they are operated upon or whether they are left alone, they will die inevitably unless full exit is given to the intensely toxic fluid filling the intestine. *Moreover, any attempt to excise the growth and perform an anastomosis at this time will be invariably fatal.* Not only will the intestine be unable to pass on its poisonous contents, but leakage, early or late, will occur at the new junction. A piece of bowel in an acute state of inflammation, sodden with œdema, with its thick hypertrophied muscular walls in a condition of great irritability, is most undesirable material to utilise for an anastomosis.

If the patient is desperately ill the quicker and simpler the operation, provided that it is effective, the better the prognosis. When there is a certain amount of asymmetry in the abdominal distension and a visibly distended cæcum coincides with a relatively flat left iliac fossa, a small incision in the right iliac region will suffice. The distended cæcum is not withdrawn from the wound but is carefully sutured to the parietal peritoneum, and a fair-sized Paul's tube fixed in the bowel. It is wiser not to attempt to pass an exploring hand into the abdomen. If, on the other hand, the abdominal distension is of uniform character and there is no evidence as to the site of the obstruction, a para-median incision below the navel may be necessary. A suitable piece of bowel on the proximal side of the growth is selected, one angle of the exploratory incision being utilised or a new small additional incision, made in an appropriate place, for the performance of a colostomy. The bowel is fixed to the skin and a Paul's glass drainage-tube sewn into it.

If the patient's condition is reasonably good certain alternatives are open to the surgeon, depending largely on the site and operability of the growth.

Growths situated in a Movable Part of the Colon.

Operable growths situated in a movable part of the colon, such as the transverse or pelvic portion, are best treated by Paul's operation. A considerable loop of bowel containing the growth in its convexity is brought completely out of the abdomen and fixed either in the exploratory opening or in another one suitably planned. A thick mattress suture passed through the mesentery of the exposed loop from edge to edge of the incision and two fixing stitches at the angles of the wound will suffice for this purpose. If the colon is not sufficiently mobile to allow of this being done without tension, much can be effected by an incision through the lateral layer of its mesentery, where the latter is reflected on to the parietes, and the gradual stripping medianwards of the bowel and median leaf of the mesentery, carrying vessels and lymphatics, with fingers and gauze. A Paul's tube is sewn into the proximal limb of the U-shaped loop. One week or ten days later, when the patient has recovered from the immediate effects of the acute attack, the loop of bowel and the exposed portion of its mesentery are cut away with cautery or knife. Three months or so later the resulting colostomy is closed by an extra-peritoneal procedure, which leaves the new anastomosis lying between the peritoneum and the deepest muscular layer of the abdominal wall. This method is by far the safest of any. It may be urged that a grossly inefficient removal of the mesentery and its possibly infected lymphatics is secured, and this cannot be denied. In practice, however, it is an operation which is found to give most satisfactory results.

Growths situated in a Fixed Part of the Colon.

The cases in which Paul's operation is not suitable may be divided into two classes: (*a*) Those in which on exploration the growth is found to be an operable one—i.e., a movable tumour without evidence of

extensive lymphatic infection or other metastasis; (*b*) those in which the growth is inoperable.

(*a*) In operable cases the bowel must be at once relieved by some variety of colostomy or cæcostomy. Bearing in mind that the growth will have to be resected and an anastomosis performed through a convenient incision made directly over it some two to three weeks later, the site of the drainage operation will be so designed that it is some distance away from this point. The advantage of cæcostomy over colostomy is that if, in the former, the gut is merely fixed to the peritoneum and not to the skin of the abdominal wall, there is quite a reasonable chance that the fæcal fistula will close spontaneously at a later date, when its services are no longer required. In old patients and in those whose tissues are in a poor state of nutrition, a third and fairly simple operation may have to be performed for its closure.

(*b*) In cases where the growth is inoperable, the choice lies between short-circuit and colostomy. The latter is undoubtedly the safer procedure, and where a left inguinal or transverse colostomy is possible, this should be done. In cases in which a cæcostomy alone would be effective (i.e., growths of the ascending colon or hepatic flexure), the surgeon, thinking of the future and the intense discomfort of a permanent cæcostomy with fluid contents leaking continuously, will probably decide upon some form of short-circuit. If the bowel is not too greatly paralysed the risk to life of this procedure will be more than compensated for by the greatly increased future comfort of the patient. The shorter the stagnant loop of the short-circuit, the better will be the ultimate result.

In these external drainage operations the intestinal contents will usually at once begin to flow away, but if in unsatisfactory amount calomel in doses of gr. ss should be given every hour until the desired result is obtained. The skin around a cæcostomy suffers from the toxic fluid which pours over it continuously, and should be protected by a thin smear of ung. zinc oxid. made sufficiently fluid by the mixing into it of a little castor oil.

HAROLD W. WILSON, M.S. Lond., F.R.C.S. Eng.,
Surgeon, with Charge of Out-patients,
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The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. E. F. Ellis is placed on the ret. list with the rank of Surg. Capt.

Surg. Lt. H. Hurst to be Surg. Lt. Comdr.

ROYAL ARMY MEDICAL CORPS.

Lt. C. A. Hutchinson to be Capt.

Temp. Capts. relinquishing their commns. and retaining the rank of Capt.: A. S. Blackwell and G. A. Shiel (on account of ill-health).

TERRITORIAL ARMY.

Capt. J. M. MacKenzie, R.A.M.C., to be Div. Adjt., 50th (Northumbrian) Div., vice Capt. (Bt. Maj.) R. E. Barnsley, R.A.M.C., vacated; and Capt. J. D'A. Champney, R.A.M.C., to be Div. Adjt. 53rd (Welsh) Div., vice Maj. M. White, R.A.M.C., vacated.

Capt. J. C. C. Howe (late R.A.M.C.S.R.) to be Capt.

Lt. J. Cohen, from 13th Bn., The Lon. R., to be Lt.; and A. C. Crawford to be Lt.

ROYAL AIR FORCE.

E. G. Howell is granted a short service commission as Flight Lt.

Lt. G. A. Ballantyne, Dental Surgeon, General List, Army, is granted a temporary commission as a Flying Officer on attachment to the R.A.F.

MANCHESTER ROYAL EYE HOSPITAL.—This hospital has been in existence for 109 years and at the annual meeting the report for 1923 was presented. During the year the out-patients numbered 30,502 and in-patients 2046, while the accidents which necessitated treatment at the hospital averaged 23 per day. Various donations and bequests received during the year enabled the managers to reduce the bank overdraft from £9000 to £3000.

Special Articles.

THE CAPITATION FEE FOR INSURANCE PRACTICE.

CONCLUDING SESSIONS OF THE COURT OF INQUIRY.

THE Court of Inquiry appointed by the Minister of Health to determine the capitation fee to be paid to insurance practitioners from Jan. 1st, 1924, held its concluding sessions at the Ministry of Health on Jan. 15th and 21st. The Court was mainly occupied with the evidence submitted on behalf of the approved societies. The members of the Court are Mr. T. R. Hughes, K.C., Chairman, Mr. F. C. Goodenough, and Sir Gilbert Garnsey, K.B.E.

TUESDAY, JAN. 15TH.

Before the evidence on behalf of certain individual approved societies was taken, Mr. H. F. Jeffrey, Secretary to the Scottish Board of Health, made a further statement regarding contract practice in Scotland. He said that the fee to be paid to doctors for the treatment of miners' dependents had been reduced, as from that day, from 4½*d.* to 4*d.* a week. There was a material difference between the apparent and actual pay which a doctor got for this class of work. There were many unpaid contributions owing to unemployment and there were also the management expenses of the clubs which were a first charge on the contributions and represented about 2½ per cent.

In his reply Dr. Cox stated that the agreement with the miners provided that full contributions should be paid during times of unemployment. There was a medical examination before entry into the scheme; and extra charges were made for special services and expensive drugs. The insured person, assisted by grants from the Exchequer, was in a position to pay an economic rate to the doctor, but this was not the case with many of the dependents.

The National Deposit Friendly Society.

Mr. Tuckfield presented the case for the National Deposit Friendly Society, which claims to be the largest centralised friendly society, having nearly 2300 branches throughout the country with a total membership of 445,000 insured persons and 600,000 deposit members. As regards the medical benefit provided to members outside the national insurance scheme the society did not appoint doctors; they allowed members to select any registered practitioner and made an allowance (based on a scale of charges) in respect of the medical treatment actually received. From 1911 to 1919 the scale for medical attendance and two days' supply of medicine had been 2*s.* 6*d.* for a visit at the patient's house and 1*s.* 6*d.* for a surgery attendance. In 1919 the scale had been increased to 3*s.* 6*d.* and 2*s.* 6*d.* respectively. For a further two days' supply of medicine an extra allowance of 1*s.* 6*d.* was made. Replying to questions by the Chairman, Mr. Tuckfield said that his society had no complaint to make as to the medical attention which had been given to their National Insurance members. They had, however, to deal with complaints of inadequate surgery accommodation, the improper charging of fees, and the giving of irregular certificates. He could not say how many of their 445,000 members had complained. In reply to Dr. Brackenbury, witness said that probably not more than 5 per cent. of the doctors' bills received by members were in excess of the scale authorised by the society.

Dr. Gordon Ward pointed out that, as it was customary to prescribe a four days' supply of medicine, the scale of fees really amounted to 5*s.* and 4*s.* for a visit and surgery attendance respectively. Sir Thomas Neill replied that if one allowed 1*s.* 6*d.* for the first two days' medicine the fee for the actual medical attendance was only 2*s.* and 1*s.* respectively

Northumberland and Durham Miners.

Mr. E. Harrison gave evidence on behalf of the Northumberland and Durham Permanent Relief Fund Approved Society, which had a male membership of 98,000. The society's evidence stated that the present service was satisfactory and equalled that given by general practitioners to the same class of patients in pre-insurance days. The majority of panel doctors gave their patients the full benefit of their knowledge and experience and could not give more. The regulations fully safeguarded the interests of both the doctors and the insured persons. The medical service, as a whole, was quite satisfactory, and the ranks of the panel practitioners were largely filled by men whose skill, character, and attention were all that could be desired. During the past three years the society's officials had visited 13,000 members in receipt of benefit and in no case had there been any complaint against the doctor. There were occasional complaints as regards surgery arrangements, and the difference in the standards of treatment given to insurance and private patients, but the complaints frequently arose out of circumstances over which the doctors had no control.

Certification was not satisfactory. He did not suggest that the doctors had any intention to mislead the society, but in fact the doctors did in many cases fail to give an absolutely true certificate. He admitted that it must sometimes be difficult to say whether a patient is incapable of work, but he thought that all doctors did not fully appreciate the seriousness of a false certificate; his main desire was that doctors should refuse to issue irregular certificates at the request of their patients.

As regards the amount of the capitation fee, witness entirely disagreed with the Minister's figure of 8*s*. 6*d*.; he thought that was too high; it was based on the figure of 7*s*. 3*d*. which was, in his opinion, wrongly fixed when the Insurance Act came into operation. His experience of pre-war contract practice suggested that the usual fee was 4*s*. with medicines. He thought that too low a figure, and he would assume a pre-war fee of 4*s*. 6*d*. to 5*s*. to be fair; applying the calculations of the Insurance Acts Committee that would be equivalent to a fee of from 6*s*. 7*d*. to 7*s*. 4*d*. to-day. He suggested that a fee of 7*s*. was sufficient to build up a fund which could provide an adequate medical service throughout the country. He would be satisfied, if necessary, with a gradual reduction of the capitation fee spread over a term of years. Replying to the Chairman, witness said that they accepted the Ministry's figures of 3·5 services per insured person per annum as an average throughout the country. The figures for his society were 2·3 attendances and 3·1 visits, a total of 5·4, but this included many compensation cases. On these figures, and assuming a capitation fee of 7*s*., a doctor with 1500 patients would give 27 attendances on 300 days a year for a gross income from insurance practice of £525. In reply to Dr. Brackenbury, witness admitted that even the figure of 5·4 services per year referred only to attendances on persons who were incapacitated. Dr. Brackenbury suggested that, at a low estimate, an equal number of surgery attendances must be given to persons not incapacitated; this gave a total of 7·7 services per year; although the service figures in colliery areas were known to be high, the profession suggested that that must be taken into account in determining a uniform fee for the country. In colliery districts there was often little or no private practice.

Pre-Insurance Contract Rates.

Mr. George Wright gave evidence on behalf of the National United Order of Free Gardeners Friendly Society. He said that his society had branches in different parts of the country and that, prior to 1912, they had provided medical treatment and medicines to their members at contract rates which varied from 2*s*. 6*d*. to 5*s*. per member per annum, with an average of 3*s*. 11*d*. With few exceptions the doctors had been very satisfied with that rate. The contract rates paid at present for attendance and medicine to members who were not insured persons varied widely in different districts; thus, in East Yorks alone the rate for adults varied from 4*s*. 9*d*. to 13*s*. 6*d*. In Lancashire it was from 8*s*. 6*d*. to 13*s*.; in Northamptonshire and Staffordshire it was 10*s*. He could not say why the rate varied so widely; in some cases, no doubt, the doctors were particularly considerate. The treatment given under the national insurance scheme was, in his opinion, an improvement on the pre-insurance contract practice. He thought that regard should be had to the large number of insured persons who were not on the list of any doctor, yet in respect of whom capitation fees were, presumably, paid into the Central Pool. Thus, in Cheshire alone, 22,133 insured persons had failed to be placed on an insurance doctor's list. It was very probable that many of these were actually receiving treatment from insurance doctors as private patients. As to the amount of the capitation fee, it should be remembered that the capitation fee was an average fee to be paid for an average service. The approved societies desired to see the profession properly paid, and the insurance work done by satisfied doctors, but this result should be attained without payment of an unreasonably high fee; in his opinion it should not be higher than 8*s*.

Dr. Cox, in the course of examining the witness, stated that from 1903 to 1910 the British Medical Association had engaged in most active controversy regarding the low contract rates which had been quoted; the doctors, had, at that time, expressed their dissatisfaction most actively. As to the suggestion that insured persons were being treated by panel doctors as private patients, the regulations expressly forbade that, except in two cases—where the insured person deliberately renounced his right to benefit and expressly demanded to be treated as an insured person, or where, being on a doctor's list and not wishing to change, he went to another doctor and asked for a second opinion or advice for which he wished to pay.

The Trade Union Approved Societies.

The case of the National Association of Trade Union Approved Societies was presented by Mr. Canter, President of the Association. Mr. Canter said the Association had one and a half million members and represented nearly every trade-union. The Association regretted that the Terms of Reference of the Court did not refer to the amendment or extension of the medical service under the insurance scheme; the trade-unions had pressed for a wider service, to include specialist treatment. The view of his Association was that for the medical treatment which was required under the new regulations the doctor would be adequately remunerated by a fee of 7*s*. 3*d*. Although the time at their disposal had been limited, the Association had collected figures from 1300 doctors practising in 250 different towns and areas; and these figures showed that in many cases the doctors did not charge their private patients more than 3*s*. 6*d*. for a visit and 2*s*. 6*d*. for a surgery attendance. This fee gave about 10*s*. for 3·5 services and a deduction of 7½ per cent. for bad debts brought the figure to 9*s*. 3*d*. A deduction for the cost of medicines must then be made. Their figures showed that in 2·8 of the 3·5 services medicines were supplied, and the statistics of the South-Eastern District Pricing Bureau showed the average cost of prescriptions to be 8·7*d*., or 2*s*. for the 2·8 prescriptions. The 10*s*. of private practice was thus equivalent to 7*s*. 3*d*. for 3·5 insurance services. He believed that the treatment given to private patients at the fees quoted was as good as, and sometimes better than, the treatment given to insured persons. A customary contract rate for dependents was 1*s*. 8*d*. a month, and this covered, on the average, the wife and two children under 16. Allowing the 2*s*. deduction for medicines, this represented a yearly fee of 4*s*. 8*d*. a head. His Association contended that unless and until there were very considerable extensions and

improvements in the medical service provided to insured persons, the medical profession had no claim for a higher fee than he had proposed. They did not agree that the fee paid should be sufficient to attract the higher skilled practitioner to undertake health insurance work unless the insured population were guaranteed this higher skill; in their opinion this could not be expected from the average practitioner who undertook insurance work. They contended that in order to secure this higher skill some alteration in the flat rate method of payment was necessary, or the flat rate should be supplemented by special payments to secure the skill of the better qualified practitioner.

In reply to questions by Dr. Brackenbury witness agreed that doctors had, on the whole, acted considerately to poor persons. The leaders of the medical profession might desire to give a full and adequate service, but he doubted whether the profession as a whole was in a position to give it. The figure of 3·5 services per person per year had been accepted from the Ministry's case, and had not been verified by independent investigation. He admitted that the private fees quoted did not include certain services within the insurance agreement; and that the Drug Fund supplied insured persons with drugs and appliances for which the doctor would make an extra charge to his private patients.

In reply to Dr. Ward witness admitted that the 2*s.* 6*d.* and 3*s.* 6*d.* quoted for private practice was not necessarily the maximum fee which a doctor charged.

Mr. Corbey, Secretary of the Association, in supporting Mr. Canter's evidence, said that for the purpose of compiling the figures on which the Association's case was based he had personally visited many districts, interviewed many people, and inspected many of the actual doctors' bills.

Certification Complaints.

Mr. W. Rigby gave evidence on behalf of the Catholic Friendly Societies and Catholic Approved Societies Associations. He said that the approved societies which he represented were not satisfied with the action of panel doctors with regard to certification. A looseness of certification was current which lowered the whole tone of medical benefit and seriously damaged the funds of approved societies. He thought that irregular certification had in many instances tended to put into the background the primary need of curing the insured person. They were now insisting on a closer medical examination, and were obtaining the assistance of the regional medical officers. Witness quoted instances where the R.M.O. had disagreed with a high percentage of certain doctors' certificates.

Dr. Brackenbury inquired what reduction in the capitation fee would, in the witness's opinion tend to produce more careful certification.

Continuing, the witness said that many insured persons received treatment in hospitals. The figures from 15 areas showed that out of 10,000 members 2159 were on the funds receiving 18,500 weeks' benefit, of which 2500 weeks—nearly 1 in 7—represented hospital treatment.

The Chairman inquired whether it was not often difficult for the doctor to act fairly as between the approved society and the insured person on questions of certification. Witness admitted that it was so, and said that in the north of England many doctors had told him that it was very difficult to refuse to issue certificates at the request of insured persons without endangering their practice.

The Seamen's National Insurance Society.

Mr. Godfrey said that the Seamen's National Insurance Society was the only society which dealt directly with the doctor for insurance purposes. The object of the Society was to provide medical treatment to seamen while they were on shore, and this was done by means of the fee system. The scale of fees drawn up when the Insurance Act came into operation had been increased by 20 per cent. in 1919 and by 50 per cent. in 1920, a reduction of 10 per cent. being made in 1922, a further reduction was now contemplated, but it was proposed to await the decision of the Court before deciding its extent. The present scale was 3*s.* 6*d.* for a visit and two days' medicine and 2*s.* 1*d.* for a surgery attendance and medicine, with special payments for night visits, mileage, and special services.

Throughout the 11 years during which the Society had been established they had nothing but praise for the way in which doctors had given treatment; they had attended the seamen in a most sympathetic manner.

Mr. Chambers, on behalf of the National Sailors' and Firemen's Union, said that during a period of three weeks, 1600 members had sent in certificates of incapacity, and of these 306 were hospital certificates. He suggested that, as the capitation fee would be paid in respect of all insured persons, account should be taken of the large number who did not trouble the panel doctor while in hospital.

The Experience of Welsh Societies.

Mr. Rowland H. Jones, secretary of the Denbighshire Association of Approved Societies, said that in his experience the medical service since 1912 had improved each year in South Wales, but it was not yet satisfactory. Many doctors did not give equal treatment to their insurance and private patients. Certificates were often loosely given, particularly at the beginning and at the end of an illness. In some instances 50 per cent. of the cases referred to regional medical officers showed incorrect certification. He thought that more might be done to relieve the insured person from having to walk a long distance, sometimes ten miles to the surgery; there might be a weekly examination at a suitable village centre. His experience on the Medical Service Subcommittee for Denbighshire showed that the medical members acted very fairly; the decisions of the Subcommittee had always been unanimous. He had met many cases where the insured person had refused to put in complaints. As to the amount of the capitation fee, he thought that 7*s.* 6*d.* was sufficient, although he would not object to 8*s.*; this would represent an increase of 100 per cent. on the normal pre-insurance contract figure of 4*s.* For doctors in rural areas an additional payment should be made for mileage and, in his opinion, the existing mileage allowance should be increased.

MONDAY, JAN. 21ST.

The case of the Emergency Committee of the Provisional General Council of Approved Societies was presented under three headings: (1) Medical contracts, (2) certification, (3) medical benefit regulations.

Pre-Insurance Contract Practice.

Mr. William Wood (Secretary of the Scottish Rural Workers Approved Society) contended that practically no service had been rendered to insured persons who were not on any practitioner's panel and that the distribution amongst the panel doctors in each area of the capitation fees of these persons was practically a free gift to the doctors, which should be taken into account in fixing any general capitation fee. The figure of 3·5 as the average number of attendances per insured person per annum was arrived at from records kept by doctors themselves, and was regarded by the Society as unreliable, because in many cases the formal granting of a certificate of incapacity was recorded as an attendance.

The Chairman excluded a recommendation for a graduated scale of remuneration as being outside the scope of the inquiry.

Mr. S. L. Duff (Permanent Secretary, Ancient Order of Foresters) gave evidence on Part I. of the Committee's case. Prior to 1913, he said, most of the contracts between friendly societies and the medical profession provided for a capitation fee of 4*s.* including medicines. In certain respects, it was true, the present-day insurance service differed from the older club practice. Under the pre-insurance contrac'

system, certification was simpler and such record keeping as was required was of an elementary character; there was also a process of health selection, but this had been greatly exaggerated; sometimes men up to the ages of 21, 25, or 30 were admitted without medical examination. Apart from these factors the medical benefit was substantially the same as under the present insurance agreement, and he thought that the sudden rise in the doctors' remuneration from 4*s.* with medicine to 7*s.* 3*d.* without medicine was entirely unjustified. An initial mistake had, he believed, been made in fixing the doctors' remuneration when medical benefit under the Insurance Act first became operative, and this error had continued in each subsequent settlement. It was fortunate for the doctors that, at the time of the 1912 settlement, the fortunes of the Chancellor of the Exchequer were bound up with the success of the Insurance Act. Almost on the eve of the commencement of medical benefit the British Medical Association—who were great organisers—had advised the doctors to refuse service, and it was only as a result of this that the high fee of 7*s.* 3*d.* had been paid. As regards the 1920 arbitration, witness suggested that it would be difficult for the arbitrators entirely to dismiss the original figure of 7*s.* 3*d.* from their minds, and so the original error had been continued. Had the award been postponed for even two months he thought a lower fee would have been fixed, as by then the nation had recovered the economic perspective which was lost in the years after the war. His committee maintained that even if the medical service offered to insured persons was perfect within the compass of the regulations, the capitation fees fixed in 1913, 1920, and 1922 were excessive. The present Court had an opportunity to apply a corrective to the initial error.

Mr. W. Marlowe, Secretary to the National Conference of Friendly Societies, said that his Conference represented 69 district societies with 7,420,000 voluntary members. He claimed that the actual remuneration received by the doctors for their attendance on friendly society members in pre-insurance days provided a clean jumping-off ground for determining the capitation fee for insurance practice. In 1898 the General Medical Council had convened a Conference with representatives of friendly societies and nothing beyond a capitation fee of 4*s.* including medicines had even been suggested. In 1908 the British Medical Association had convened a Conference, and there had been no expression of dissatisfaction with the contract terms of the friendly societies. That being so, he did not see why the fee should jump to 7*s.* immediately the Insurance Act came into operation. Under the old friendly society régime the relations between the doctor and the patients were sound and good and the doctors had been kind and generous; the relations with the societies, too, had been pleasant, and the doctors had been anxious to undertake the work. He contended that the 4*s.* was the right figure from which to start, and that allowing for the altered conditions of living, 7*s.* 3*d.* was all that should be paid at the present time, not a penny of this to come from the funds of the approved societies. The approved societies wished to be friends with the doctors; but he thought that the doctors had a low opinion of the friendly societies.

Dr. Cox said that he could assure Mr. Marlowe that the doctors had no such low opinion of the societies as he suggested, but it was sometimes difficult for them when the societies themselves had such a low opinion of what the doctor's work was worth. If the doctors were completely satisfied with the pre-insurance friendly society practice, why had the profession refused to work the National Insurance Act under the ægis of the friendly societies? Mr. Marlowe, having replied that it was because the profession desired to obtain complete control, Dr. Cox quoted the opinion expressed to the profession by Mr. Lloyd George in 1911 that in this respect they had a legitimate grievance. In reply to further questions by Dr. Cox, Mr. Marlowe said that the only certificates required in friendly society practice was a declaring on and declaring off certificate; no records had to be kept by the doctor, and members were usually admitted only after medical examination.

The Chairman indicated that the Court would not give undue weight to what happened before 1911.

Mr. G. L. Lingstrom, Past Grand Master of the Manchester Unity of Oddfellows, said that the original capitation fee of 7*s.* 3*d.* was obtained because the profession took undue advantage of the needs of the community, by threatening to refuse service under the Insurance Act. In his opinion 7*s.* 3*d.*, which represented an increase of 3*s.* 3*d.* on the old friendly society rate of 4*s.*, was adequate; the doctors should be paid an economic rate, based on the rate which was customary before they received assistance from the State. The old friendly society service was satisfactory to the members, and the relationship between the society and the doctors had been good; yet as soon as the Insurance Act came into operation the doctors raised their fee from 4*s.* to 8*s.* 8*d.* for private contract work. The service available to the insured person might, perhaps, in some respects, be better than the earlier club service—e.g., as regards expensive drugs and appliances, but as regards the services given by the doctor it was not better. In reply to the Chairman, witness said that the figures for 53 branches showed that the fee paid to the doctor in respect of non-insured members varied from 8*s.* to 20*s.*, with an average of 12*s.* 6*d.*; the figures for 23 medical institutes showed fees ranging from 6*s.* to 16*s.*, with an average of about 8*s.* 6*d.* All these rates were influenced by the original excessive insurance fee of 7*s.* 3*d.*

Certification.

Mr. J. P. Lewis, Secretary of the Hearts of Oak Benefit Society, said that the number of certification cases which came before insurance committees offered no criterion of the extent of irregularities. Although only 1339 cases had been dealt with since 1920, the pitiable point was that 60 per cent. had gone against the doctor. Sickness benefit became payable only at the beginning of 1913, yet in August of that year a departmental committee had to be appointed which had resulted in the establishment of regional medical officers. Information recently collected by societies representing more than one-half of the insured population of Great Britain, showed that out of a total of 56,107 cases referred to R.M.O.'s, during the first six months of 1923 14·5 per cent. cases were fit to work, 44·8 per cent. cases were unfit, and in 40·7 per cent. cases the insured person failed to attend. Most of those who failed to attend would have been declared fit since the date of citation. Out of one group of 41,836 cases referred, 18,335 failed to attend and investigation showed that 16,871 of these had declared off prior to the date fixed for examination, only 1464 being actual failures to attend. Of 15,201 cases found incapable of work or declared off, 588 were those of members who had been furnished with monthly certificates of incapacity.

In reply to the Chairman, witness said that he appreciated that certification as to incapacity was often a difficult matter for the doctor. The appointment of regional medical officers had worked some improvement; whether it would result in further improvement depended on whether the doctors took to heart the lessons to be learned from the cases referred to R.M.O.'s.

Mr. E. F. Spurgeon, National Conference of Industrial Approved Societies, said the funds of approved societies were the property of the members, and references to R.M.O.'s were, therefore, solely in the members' interest. Applying their experience to the figures of the Ministry of Health, out of 107,242 references to R.M.O.'s it might be assumed that 53 per cent. had been found fit to work. The approved societies were anxious to coöperate with the doctors; and they did, in fact, receive coöperation from a large number of insurance doctors. He considered that the certificate should enable the society to satisfy itself from the health point of view that the member was

actually incapable of work. The societies did not refer cases to the R.M.O. until the member had been ill for four weeks and then only on the recommendation of one of their medical officers; thus six or seven weeks would usually elapse between the beginning of the illness and the R.M.O.'s examination. On many certificates the cause of incapacity was insufficiently stated; there was a tendency to certify sickness rather than a specific disease. He thought that much of the loose certification was due to careless and cursory examination of the patient; thereby adequate treatment might not be provided, and the patient's recovery might be postponed. He hoped that the profession would realise that the approved societies desired to extend coöperation to every doctor on the panel.

The Range of Service.

Mr. H. Lesser dealt with Part III. of the Committee's case. He denied that greater obligations and responsibilities had been imposed on the doctors since 1913. Section 15 of the National Insurance Act, 1911, provided that the arrangements to be made by insurance committees should be such as to secure adequate medical attendance and treatment from insurance practitioners; that must mean treatment adequate to the general purposes of the insurance scheme; and from that standpoint the doctors were required to do no more in 1924 than in 1913. The new definition of general practitioner treatment did not extend the range of service; it altered the wording not the substance. The provision as to surgery accommodation and practice arrangements were necessary only to enable action to be taken in exceptional cases, but did not increase the obligations of the doctor. The doctors had, moreover, always accepted the principle of collective responsibility, and had received remuneration for this; thus, in the London area, the 11*s.* capitation rate had actually produced 11*s.* 6·94*d.*, while the 9*s.* 6*d.* fee had given 9*s.* 10·2*d.* and 9*s.* 7*d.* in 1922 and 1923 respectively. As regards their certification obligations the doctors seemed to suggest that their only duty was to their patient, but this was an entire misconception; in the administration of benefits under the Insurance Acts the doctors and the approved societies were correlated. The supposed additions to the doctor's obligations were all included in the general requirement of an adequate service, and while this overriding provision of the Act remained, he thought that the Court should dismiss the doctors' claim.

The Societies' Case Concluded.

Sir Thomas Neill concluded the case on behalf of the approved societies. He said that if one considered the actual details of the work of a large approved society involving, for example, 69,000 claims a year, with special reports in 25,000 cases and the provision of treatment for 6000 tuberculous members, it would be realised that those associated with approved societies were actuated only by motives of national service. They desired to do all that they could to lift up the service, and for that purpose they wished to be able to talk over matters with the doctors. They did not want to feel that the doctors were so high and mighty that they could not enter into mutual discussions. The "hands off" attitude adopted by the profession with regard to a service towards which the State contributed was, in his view, most undemocratic.

Further evidence might have been submitted by his side regarding the time rate equivalent. It was not clear that the records on which the Ministry's figure of 3·5 services per insured person was based excluded attendances in respect of confinements, neither did they know to what extent the correctness of the entries on the records had been checked. There were, on an average, 3500 insured persons in hospital; the doctor was not at risk at all as regards these. There were, also, many persons who had not selected a doctor; assuming the number to be 10 per cent., it represented £750,000 even at the 7*s.* 3*d.* capitation fee. He hoped that the Court would, in the interests of all parties, be economical in their decision; they had arrived at the stage when inflated payment for services of this kind could not be maintained.

Mr. Abbott informed the Court that the annual report of the Minister of Health showed that the number of insured persons who had not selected a doctor was only 5·2 per cent.

Dr. Ward, on behalf of the Medical Practitioners' Union, in the course of a further statement expressed the view that the figures on which the Ministry's calculations were based were not those of an average practice; and he doubted whether the figures had been taken from a proper proportion of town and country practices. The average salaries of regional medical officers had shown progressive increases from 1920 to 1922, yet the insurance doctor's remuneration was to be decreased. He thought that the present certification rules exceeded what was necessary. The obligations of insurance practitioners were bound to increase and therefore any capitation fee decided on should not be reduced if recommended for a term of years.

The Reply to the Societies.

Dr. Brackenbury replied to the case of the approved societies. He said that he did not propose on that occasion to deal with the many detailed points which had been raised. He confessed a difficulty in seeing the relevance of much of the evidence. The approved societies contended that the doctors should receive less because the service was not as complete as was desirable. He sympathised with that view; the profession would like to see a service which would include everything which the insured person could need; but it was surely begging the question to say that the doctor's remuneration should be reduced because there was not that full service; the question was the value of the service which was in fact being given. The profession did not complain of the increase in their responsibilities since 1913; they had themselves suggested many of them, but they did claim that in certain important respects—e.g., the provision of emergency treatment and the administration of anæsthetics at specialist operations, additional duties had been laid upon them, and that the value of those services must be assessed. It was said that the fee should be reduced because the area of the doctor's responsibility was limited by the number of insured persons who had not selected a doctor. That argument showed an amazing ignorance of the principles of insurance. Because under an insurance scheme there were liabilities which did not mature, it was surely wrong to suggest that those liabilities should be borne for nothing. It was entirely wrong to assume that all insured persons treated in hospitals were cases which the insurance practitioner ought to treat; they were mostly cases falling outside the insurance agreement. In smaller towns, moreover, the hospitals were staffed by the local general practitioners. It was said that many of the doctor's duties, such as the writing of certificates, were trivial, yet the societies attached great importance to certification and said that it should be carried out with great care. Dealing with the suggestion that the fee should be reduced because the service rendered by the doctors was not a good one, Dr. Brackenbury was proceeding to quote the evidence of the Ministry and of the insurance committees, when the Chairman observed that the Court would not regard any defect in the service except in relation to certification upon which specific allegations had been made.

On the question of certification, Dr. Brackenbury said that it was quite wrong to assume that there was necessarily incorrect certification in all cases where insured persons were declared off between the date of citation and the day appointed for examination by the R.M.O. It was only natural that the cases referred by societies should be mainly those where the patient was getting near the end of an illness and would therefore, in any event, have been certified fit for work before the date of the R.M.O.'s examination. It was often a matter of real difficulty to say definitely that a patient was unfit for work one day and fit on the next. The medical profession attached

considerable importance to certification; to sign a false certificate was a very serious thing for a medical man; neither did they wish to palliate lax certification. They recognised their duty in this respect, but it was an oppressive duty and had been placed on them over and above their duties to their patients; there was nothing comparable to it in private practice; and it must be taken into account in deciding the amount of capitation fee.

As regards the pre-insurance club practices, he accepted the evidence of the insurance committees that the insurance scheme offered a better service. He could not admit that the contract rate of 4*s.* was adequate, but even accepting that, it was to be noted that a customary service rate in those days was 1·25 services per member per year. Assuming a present day service rate of 3·77, even the 4*s.* rate would be equivalent to 12*s.* in insurance practice, less 1*s.* for drugs, but with an addition for certification, records, and increased range of service.

In conclusion, Dr. Brackenbury said that he could not believe that the approved societies seriously suggested that a reduction in the capitation fee would really improve the service available to insured persons, neither did he think the societies would desire that the pay from insurance work should be so low that the doctor would devote most of his time and interest to his private practice. The profession wholeheartedly desired that the insured person should receive as complete a service as is given to private patients, but to secure that it was necessary that the capitation fee should be comparable to the income derived from private practice.

In concluding the sittings of the Court the Chairman thanked all the parties for the excellent way in which they had presented their evidence. He hoped that the Court would be able to issue an early report.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Projected Insurance Scheme and the Medical Profession.

THE Chambre des Deputés has under discussion a new proposal with regard to an insurance scheme, a subject which is of topical interest to the English medical world. Under the proposed scheme insurance will be of two kinds, compulsory and voluntary. The first category includes all those persons whose income is less than 10,000 francs per annum, allowing another 2000 francs for each dependent child under 16. A levy of 10 per cent. is made on the basis of the income, contributed partly by the employer and partly by the employee, and in return the insured person may claim medical treatment and drugs for himself, his wife (if not a separate wage-earner), and his children. A daily allowance amounting to half the regular salary is made in case of illness, and for disablement a pension of 500 to 3000 francs, according to the scale of the contributions, is allowed. A further allowance is made to wives during the three months preceding and the three months following childbirth, while obstetric treatment is provided free. The number of wage-earners affected by the compulsory insurance is estimated at 12,000,000, including wives and children. In addition thereto farmers, artisans, small employers, and small merchants are eligible, provided that they are not more than 30 years of age and free from any chronic malady. It has been decided to place the administration of the funds in the hands of mutual benefit societies. Insurance societies are authorised to make contracts for medical service with the doctors, on condition that the following three principles are maintained: (1) free choice of doctor by the insured party; (2) collective contract; (3) adoption of part-payment coupons. Free choice of doctor is, however, limited to such medical men as have signed a collective contract with a society, and as the society will naturally endeavour to contract at the lowest possible capitation figure, the contract doctor will be obliged to enrol a clientele of unwieldy proportions. The part-payment coupon is designed to circumvent abuses of the society's funds by laying a small charge directly on the insured person for all medical treatment he receives, but it is doubtful if the object desired will be achieved. The main objection to the working of the law is that the interests of the insurance societies will be constantly opposed to the doctors' professional interests; the detection of malingering will be of greater moment from the society's point of view than careful ministration to the sick. In view of the unanimous protests of the organised medical profession the Bill has been submitted for revision, but will shortly be laid before the Chambre, which will doubtless make it a plank in the forthcoming election platform. French medical opinion is not concerned with the political aspect of the question. Its sole object is to consider the insurance scheme from the point of view of the medical profession in maintaining a high standard of technique and efficiency.

Instruction in the Technique of Sanitation.

As provision for practical training in sanitation has hitherto been lacking in France, the Under Secretary of State for Technical Education has added to the National Conservatory of Arts and Crafts an Institute of Sanitary Technique, open to all whose studies or whose profession demand a scientific knowledge of sanitation. Duly matriculated pupils may obtain a diploma in sanitary technique on satisfying a board of examiners. Non-matriculated pupils who do not wish to qualify may attend the lecture courses on application to the Director of the Conservatory. The training will be free, and the complete course will not exceed three months, in order to allow candidates who do not live in Paris to complete their studies in the shortest possible time. The course will include theoretical lectures, practical demonstrations, and visits which will occupy the whole of each day. At the opening of this institute, which took place recently, the director, Mr. F. Heim, outlined the purpose of the work. "The object of the institute," he said, "is to give engineers, architects, builders, and all others who are concerned in matters of hygiene an opportunity to acquire knowledge which will enable them to embody sound hygienic principles in their constructive work, and thus further the material welfare of the community."

Hygienic Measures following the Floods of Paris.

During the recent floods the Parisiens suffered more from apprehension than from the realisation of their fears. The waters of the Seine remained at 25 cm. below the flood level of 1910, but these 25 cm. spared Paris the disasters of 14 years ago. From the medical point of view, the unfortunate happenings which were recorded in THE LANCET of Feb. 5th, 1910, have not been repeated on this occasion. Only a very circumscribed area of Paris, in the seventh arrondissement, was deprived of electricity, but no damage was caused either to hospitals or to hospital installations. Refugees who were forced to leave their dwellings were allocated to empty military buildings situated on the fortifications. The Minister of Hygiene instituted a daily medical visit to each of these buildings, and provided a staff of nurses to care for the sick, the convalescent, the mothers, and the children. The population of Paris was warned, by means of a circular, not to drink water from public fountains or wells unless it had been boiled or otherwise purified. Other sanitary provisions were as follows. Wells and cisterns must be cleaned and disinfected (500 g. of calcium or potassium permanganate per cubic metre of water to be disinfected). Conduits must be examined, and where polluted by infiltration they must be put in order and cleaned. The consumption of uncooked vegetables has been temporarily proscribed; all foodstuffs which might

have been subjected to pollution must be cooked. Houses and outhouses are to be cleared of mud and filth, which must be deposited at a safe distance from any drinking water-supply. Plaster and lime, added to the mud, is recommended as a convenient drying method. Disinfection is carried out by carefully mixing about 5 kg. of quicklime with every cubic metre of mud. The floors of dwellings must be disinfected either by whitewash in the case of earth floors, or by thorough washing with an antiseptic solution (eau de javel, cresyl, warm lye, &c.) when the flooring is of wood. The same precautions must be taken with cellars and basements. Soiled mattresses must be burned and other bedding washed and disinfected. Schools, workshops, factories, and shops may not be reoccupied until such measures have been carried out. With these precautions no sudden epidemic or aggravation of sanitary conditions have been provoked by the floods.

Public Health Services.

SCHOOL-CHILDREN ON THE ISLAND OF LEWIS.

THAT conditions on the Island of Lewis are incredibly hard at the moment is borne out in the reports for 1922 and 1923 of the school medical officer, Dr. Agatha E. Miller. These islanders are always faced with the primitive struggle of wresting a living from the natural resources of their surroundings; the last three years have been lean ones, and there is now a strenuous fight for existence. Children's weight here fluctuates according to whether the harvest be good or bad, and there is an annual "spurt" in weight throughout the island after harvest. A good harvest in 1920 meant an increased average weight in the summer of 1921. A poor harvest in 1921 resulted in a decreased average in 1922. In 1922 the harvest was better again, and one would have expected improved weights in 1923. In this we are disappointed. The fishing and tweed failures, with the consequent loss of employment, have told against the children. "The outlook," writes Dr. Miller, "for the coming school year, with the wet season, the failure of the harvest, and the condition of the peat, is black indeed."

On entering upon school life the physique of these island children, who come of a noble, well-built race, gradually deteriorates. They enter school well above the normal in every way; indeed, in previous years the entrants have been very much above the average in weight, but as school years pass the children below the average increase in number. In districts specially dependent on the harvest the deterioration is greatest. Feeding experiments during the last three years in one large school demonstrated that this deterioration was dependent on want of food alone. The result of the provision of merely a cup of cocoa or soup at midday was that of 61 infants of 5 and 6 years of age not one was below 40 lb. in weight. With the stoppage of this midday soup or cocoa and failure of the harvest 13 per cent. fell below. Similarly, of 28 children of 12 years only 2 were under 70 lb. in weight and 50 per cent. fell below. The weight averages of boys of 5 fell from 45·56 lb. to 41·40 lb., and for girls from 47·38 lb. to 44·31 lb. Boys of 12 fell from 76·68 to 73·54, and girls from 79·13 lb. to 71·62 lb. In 1922, owing to the lack of funds and the inability of the parents to pay the necessary penny, the provision of a cup of hot cocoa at midday was stopped, and so grave is the present outlook that teachers all over the island are taking steps to raise the necessary funds for midday soup or cocoa. The distress is so general that it is feared that unless relief works of some kind are started all over the district within the next week or two the children will have to be fed from outside sources. The country children almost invariably belong to crofter fishermen, who welcome whatever casual labour they can get. Unfortunately there has been little or no work available for the last two years. The children of men who did not come back from the late war are conspicuous by their good clothing and superior nutrition. The rural population here differs from that in southern areas inasmuch as, having a hereditary right to the soil it is stationary, and fundamentally the race is good, as is demonstrated by the teeth. Two-thirds of the children examined had perfectly sound teeth. The majority of defective teeth was accounted for by the town children. No cases of rickets of long bones has been met with in Lewis for the last three years. Individual children removed to a home or even fed with the addition of oil at their own homes can easily put on a stone in weight in a month. The children, too, are clean. In the country districts vermin are few in number, though in the town this infection presents a serious problem. In Lewis altogether a wonderfully high standard of cleanliness is maintained. No dirty heads were noticed. The hair is usually washed weekly. All the water has to be carried from the well, as in country districts; even in the towns a number of houses have no water and few indeed have baths.

The result of an investigation into the social conditions in the black and white houses in Lewis is given in Dr. Miller's report. Evidently the feeding of these islanders is an urgent undertaking which should not be delayed.

Correspondence.

"Audi alteram partem."

THE PROMOTION OF MEDICAL HYDROLOGY.

To the Editor of THE LANCET.

SIR,—We desire your support in bringing before the profession the need for systematic teaching of medical hydrology, by which term is to be understood the science of treatment by waters internally and by heat, cold, and other agencies in baths and external applications. The General Medical Council have now definitely recommended that instruction in physical treatment should be included in the teaching of therapeutics, and we believe that the science of medical hydrology must be the foundation of such instruction. A joint committee of the International Society of Medical Hydrology and the Section of Balneology of the Royal Society of Medicine has been formed to promote the teaching of medical hydrology in England, and has already established a course of lectures on the subject under the London University Extension Board. It has further drawn up a statement and presented it to the Ministry of Health, pointing out how far we in England have fallen behind continental countries in this direction and how this state of things may be remedied.

Through the medium of your columns we now seek to inform the medical profession generally of our aims, which may be thus summarised:—

1. *Research.* The establishment and endowment of a central institute and laboratory for encouraging and co-ordinating systematic research into the physical and chemical properties and the pharmacological action of the British medicinal waters, and of the action and use of baths.

2. *Teaching.* Post-graduate; courses in London and at other universities. Students; inclusion of systematic lectures in the courses on therapeutics. Practical; study tours to British spas.

3. A complete *survey* of British medicinal waters.

4. Official *authorisation* of such waters. (Compare the official authorisation of drugs in the British Pharmacopœia.)

5. For the purpose of carrying out these objects, the establishment of a permanent *advisory committee* analogous to the French "Commission des Eaux Minérales."

Of the total working time lost by the population through illness, a very large proportion is due to chronic disease of the rheumatic type, which are more effectively treated by hydrological measures than in any other way. That this is already recognised in some quarters is shown by the voluntary contributions made to our great mineral water hospitals by

working-class organisations and other bodies responsible for the health of the poor. But it is not only the poor and the so-called working-class that need to be considered, for, as authorities have already pointed out, a great field of usefulness exists for such treatment at the health resorts in the early and preventive treatment of many diseases which seem to be peculiar to the strenuous life of to-day and which may perhaps be summed up as premature breakdowns. These conditions seem to affect particularly the brain workers of the nation, and their consequences, though less obvious, are perhaps of even greater importance than those previously referred to.

The importance of research and instruction in the treatment of these conditions among others, needs no argument, and it is to effect this object that we are directing our efforts.

On behalf of the Committee,

We are, Sir, yours faithfully,

C. W. BUCKLEY,
W. EDGECOMBE,
R. FORTESCUE FOX,
R. G. GORDON.

36, Devonshire-place, W.,
Jan. 17th, 1924.

THE AURICULAR BEAT.

To the Editor of THE LANCET.

SIR,—Dr. G. Arbour Stephens raises an interesting point in his letter in your last issue as to the production of the sound, which we called the "auricular beat," by which we meant an exterior manifestation of the auricular contraction. Though there were 5 oz. of effusion in this case, in another, a boy of 14 whose ventricular rate for 24 hours before his death varied from 6–12 per minute, the auricular contractions were also well heard and there was no excess of fluid in the pericardium. In the case to which Dr. Stephens refers, the pericardial effusion was probably a terminal event; whereas the auricular beat, which was loudest at the earlier stage of the disease, had ceased to be evident for some weeks before death. The sounds corresponded absolutely to the auricular and ventricular contractions as shown by the cardiograph. Putting aside the question as to whether muscular action may cause vibrations audible as sound, one would consider that the sound manifesting the auricular contraction is produced in the same way as the third heart sound, and is due to a forcible contraction of the auricle driving the blood into the passive ventricle, thereby causing currents which close the auriculo-ventricular valve with varying degrees of force. It is also possible that if this closure is pronounced the shock might even be transmitted to the arteries.—I am, Sir, yours faithfully,

Wimpole-street, W., Jan. 21st. A. J. SCOTT PINCHIN.

EARLY HUMAN EMBRYOS.

To the Editor of THE LANCET.

SIR,—It would be kind of you to make known our pressing need for early human embryological material. An investigation is being made of the ductless glands and other organs of the human fœtus by members of the staff of the anatomical and histological departments of the London (R.F.H.) School of Medicine for Women. Up to the present the greater number of fœtuses received from our hospital and other sources are aged from 6 months upwards, the younger embryos being scarce. We should be grateful to any reader who could send us such material. The following suggestions for sending it are offered.

1. The fresh material should be fixed for at least one day before sending in 5 per cent. formalin made up with tap-water if normal saline is not available.

2. In complete abortions the sac should be carefully snipped to allow free entry of the fixing fluid.

3. Small embryos travel best in fixing fluid: the receptacle should also contain sufficient cotton-wool to prevent damage by shaking.

4. Larger embryos, after fixing for at least two days in 5 per cent. formalin, may be packed up with cotton-wool soaked in the formalin, and the whole wrapped in oil-silk or like material.

5. Material in central London districts could be called for on receipt of a telephone message to Dr. Lucas Keene at the London School of Medicine for Women between 9 A.M. and 5 P.M. any day but Saturdays and Sundays.

It is scarcely necessary to say how extremely important it is to obtain material as fresh as possible. A short history of the case, including age of mother, notes of previous pregnancies, also whether syphilitic or no, adds greatly to the value of the specimen. We shall be only too glad to report to the sender findings of any interest should he so desire.

We are, Sir, yours faithfully,

M. F. LUCAS KEENE.
E. E. HEWER.

London (R.F.H.) School of Medicine for Women,
8, Hunter-street, W.C., Jan. 21st, 1924.

IMMUNISATION AGAINST DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—In a paper read before a joint meeting of the Society of Medical Officers of Health and the Royal Sanitary Institute, held at Blackburn in the spring of 1922, dealing with my experience of the Schick test and toxin-antitoxin immunisation, I contended that the question was primarily one which concerned the public health authorities. The leading article in THE LANCET of Jan. 19th, prompts me to urge this view once more. Sufficient work has been done by Park, Zingher, and others to show that the Schick test is a reliable indicator of susceptibility to diphtheria, and also that toxin-antitoxin immunisation confers protection which lasts for years, possibly for life; at any rate certainly for that age-period when the majority of children are Schick-positive.

Public health authorities, through their child welfare and school medical officers, come into daily contact with children at the most susceptible age-period, and also under conditions which favour accurate tests and careful observation. If, as the result of judicious propaganda and enlightenment of their controlling public bodies, medical officers of health were to make practical use of this recent discovery in preventive medicine, to them, in no small measure, would be due the credit of having greatly minimised and perhaps ultimately abolished a universal and dangerous disease.—I am, Sir, yours faithfully,

T. E. DICKINSON.

Bedford-square, W.C., Jan. 21st, 1924.

MALARIA CLINICS IN RUSSIA.

To the Editor of THE LANCET.

SIR,—The Malaria Clinic in Buzuluk was the first opened by the Quakers in the famine area, and is now the centre of a number of similar clinics scattered over a wide country district. In the last week of October, 1922, I reached Buzuluk, but had to wait a fortnight for the clinical laboratory outfit which I had bought in London. Dr. Melville Mackenzie, who was then the chief medical officer of the Friends' Mission, suggested [1] that in the meantime I should make examinations for malaria of the blood of a few families connected with the Mission. There had been a very severe epidemic of tropical malaria during the summer and the death-rate was very high. The news spread through Buzuluk that the Quakers were going to treat malaria, and within the first week the medical office was besieged with hundreds of would-be patients. We had a certain amount of quinine—a gift from the British Government—and it seemed impossible to refuse them, so the following rules were drawn up by Dr. Mackenzie:

1. Only those patients to be treated in whose blood malaria parasites could be demonstrated.

2. No quinine to be given to take at home, but patients to attend as required at the Mission dispensary and take their dose under supervision.

3. The patient to agree to take the full course of quinine.

Without these rules some patients would have sold quinine handed out to them, and many more would

[1] See M. D. Mackenzie: Malaria in South-East Russia, THE LANCET, Dec. 8th, 1923, p. 1225.

have shared it with friends, or have put half of it aside for the dreaded time when probably there will be no Quakers and consequently no quinine. The numbers have gone steadily up from an average of 50 new patients daily to 200 and more in Buzuluk alone. No certain figures are obtainable, but from general observations 80 per cent. may be taken as a low estimate of the number of the population affected by the disease. People come to the clinic from as far away as 50 miles, arriving behind horses, cows, or camels, their various equipages filling the street for a hundred yards. The quick results of quinine treatment astonish even those of us who have long been accustomed to malaria work in tropical countries. Patients seldom have an attack of malaria after commencing treatment.

It has never yet been possible to receive every patient who applies, as the number has to be restricted by the amount of quinine in hand for the month. We receive quinine now almost entirely from America in very large quantities, but even so every clinic (of which there are now several which have been opened one by one in various parts of the country) has an allowance much below what it could use. The patients are extremely grateful, especially those who have to work in the fields, as daily attacks of malaria prevent many from getting on with the ploughing in the spring, and this means starvation for their families in the following winter and in the aggregate a great setback to the slowly returning prosperity of the Ooyezd. If people could only see the street outside the clinic on any market day they would understand why it is hard to choose which patients to turn away. It is no uncommon thing to find an unconscious man on the pavement or road, no one taking much notice of him or attempting to move him to a safe place, for people are used to this by now and so many of them are sick themselves.

Those who are turned away from the clinic have absolutely nowhere else to go for help, and what we want to do is to make it possible to receive all who come. I appeal, therefore, to any who are interested to make gifts of quinine so that we need not turn away those who need our help.

I am, Sir, yours faithfully,

ETHEL M. CHRISTIE,
Supervisor of Malaria Clinic, Buzuluk; formerly Assistant Pathologist, Royal Westminster Ophthalmic Hospital.

Jan. 10th, 1924.

*** We understand that gifts of money or quinine will be gratefully received by the Friends' Council for International Service, Devonshire House, 136, Bishopsgate, London, E.C. 2.

PROF. WHARTON JONES AND THE LATE SIR JOHN TWEEDY.

To the Editor of THE LANCET.

SIR,—Apropos of the letter in your last issue from the Rev. P. G. Cawley, the following anecdote communicated to me by the late Sir John Tweedy may be of interest to your readers. Sir John Tweedy gave me the facts of the case for publication in my "Lives of the Fellows of the Royal College of Surgeons," and it seems only yesterday—it was in October, 1919—that he told his story with unusual vivacity, his painful breathing momentarily forgotten, and with something perhaps of a return to the spirit of his early journalistic days.

Sir John (then Mr.) Tweedy being present at a staff meeting of THE LANCET was asked whether he had got ready a biographical notice of Mr. Wharton Jones, as the latter had written to University College Hospital to say that he was unable to attend, and it was therefore inferred that he was ill. It was feared that at his age illness might indicate "the last phase." Mr. Tweedy at once called on Wharton Jones to inquire about the state of his health. It was during the week of the great blizzard of January, 1881, when the snow lay heavy in the streets of London for seven days and all traffic was at a standstill. Wharton Jones occupied a house, where he had given rooms to a poor couple, husband and wife, who looked after him in return for their lodging. To Mr. Tweedy's horror, when he entered his old teacher's room, he found him crouched beside a fireless grate, his shoulders hunched up under a mass of shawls and shabby wraps, the picture of destitution. He was gnawing a cold and uninviting piece of beef-steak and a crust of bread, the wretched meal being all, as the woman of the house informed the visitor, that she and her husband could spare from their own scanty food-supply. Wharton Jones, the distinguished man of science, the revered master of Huxley, was dying of starvation or at least of malnutrition. He had not a penny of money, he was ill, his food was such as his visitor saw. Mr. Tweedy took prompt measures and called on Dr. Sidney Ringer, to whom he said: "Do you know that Wharton Jones is dying of starvation?" At once a rescue party was formed. Mrs. Sidney Ringer, with much experience as a nurse and a kind heart, started off forthwith with soup, jelly, and other restoratives. Her husband wrote a cheque for £25. Armed with this, Mr. Tweedy stepped over to Mr. (afterwards Sir) John Erichsen and told the story. Greatly concerned, Erichsen wrote a handsome cheque. Mr. Tweedy paid other calls on leading medical and scientific men, friends, and colleagues of Wharton Jones, and, in a few hours, had collected £140. This sum was paid into the bank by Erichsen in sovereigns so that the beneficiary might not guess to whom he was indebted. His life was saved. About this time Huxley, on whom Mr. Tweedy had called, Erichsen, and another eminent man, Sir Joseph Fayrer, laid the case before Mr. Gladstone, then premier, who said that the Pensions List was made up, but that Wharton Jones should be in the next Civil List. Eventually he received a pension of £100 or more, to which was later added the Tancred Pension granted him at the instance of Sir William Jenner, then President of the Royal College of Physicians.

Wharton Jones never knew who his benefactors were or what Tweedy had done for him. In his retirement at Ventnor, where he was known as a quaint local figure, he managed to save some £600 before his death on Nov. 7th, 1891, ten years after the destitution episode. This money was, I have heard, left to a legal friend, to whose good offices Wharton Jones erroneously believed himself to owe his safety from starvation.—I am, Sir, yours faithfully,

Jan. 19th, 1924. VICTOR G. PLARR,
Librarian, R.C.S. Eng.

*** In THE LANCET of July 16th, 1921, we referred briefly to the pathetic story which Mr. Plarr details. —ED. L.

GLASGOW ROYAL MEDICO-CHIRURGICAL SOCIETY.—On Friday, Jan. 11th, this Society met in the Glasgow Royal Maternity and Women's Hospital, with Dr. A. Maitland Ramsay, the President, in the chair. The meeting took the form of a clinical night and the following demonstrations were given by the members of the staff of the hospital. Dr. J. Norman Cruickshank demonstrated a number of specimens illustrating the birth hæmorrhages of the infant, and explained their mode of production. He gave the results of the analysis of 400 post-mortem examinations carried out in the research department of the hospital, and showed the incidence of tentorial tears and of the various grades and types of hæmorrhage met with. The frequency of still-birth associated with each type of lesion was also pointed out. Two other series of preparations were also shown—one illustrating developmental anomalies and diseases of the new-born, and the other illustrating some of the maternal lesions in the toxæmias of pregnancy. Dr. Douglas M. Lindsay demonstrated two new obstetrical instruments—(1) a "decapitating thimble" to facilitate the operation of decapitation, and (2) a new type of obstetric forceps. Dr. S. Cameron performed Cæsarean section on a case with marked pelvic contraction. The cases shown included the following:—Dr. A. N. McLellan: A case of exophthalmic goitre complicating pregnancy. Dr. R. A. Lennie: Two cases of cardiac valvular disease associated with pregnancy. Dr. John Hewitt: Cases of albuminuria in pregnancy. Dr. James H. Martin: A series of ante-natal cases. Dr. James Hendry: Two cases of rupture of the uterus, and one case of bronchitis complicating the puerperium. Dr. Donald McIntyre: A series of post-natal cases.

Obituary.

EDWARD EMRYS-ROBERTS, M.D. LIVERP.

WE have to record with regret the death on Jan. 15th of Prof. E. Emrys-Roberts, at Penarth, at the early age of 45. Prof. Emrys-Roberts held the chair of Pathology and Bacteriology in the National School of Medicine of the University of Wales, and was pathologist to the Cardiff Royal Infirmary. Born in 1878, he was the eldest son of Mr. E. S. Roberts, of Dawlish. He began his medical studies at Liverpool, and took the degrees of M.B., B.Ch. at the old Victoria University in 1902. During his student days he served as a dresser with the Welsh Hospital attached to the Field Force in the South African War, and obtained the medal with three clasps. On his return he worked as a research scholar for three years on gynæcological pathology in the University of Liverpool, and graduated M.B., B.Ch. Liverp. in 1904 and M.D. in 1908. After acting as sub-curator of the pathological museum in Liverpool, he was appointed demonstrator of pathology in the University of Bristol and pathologist to the Bristol General Hospital. He proceeded in 1910 from Bristol to Cardiff, on his election to the professorial post which he held till his death. During the war he served with the First Army from 1915–18 in command of the Welsh Mobile Pathological Laboratory in France.

An article dealing with status lymphaticus by Prof. Emrys-Roberts appeared in the *Journal of Pathology and Bacteriology* in 1914, and he was secretary of the committee of the Medical Research Council appointed to investigate this condition. He also wrote in 1920 in the *Journal of the Royal Army Medical Corps* on the use of horse serum by inoculation in the treatment of sepsis; and was recently interested in the study of anthracosis. He was responsible for organising at the Cardiff Royal Infirmary a department of pathology in preparation for the completion of the School of Medicine, a development which he anxiously looked forward to and just lived long enough to see accomplished; in him the young school has lost a keen supporter and an indefatigable teacher. The Cardiff Medical Society owed him much; he was its senior secretary and enthusiastic in his work for it. Apart from his professional researches, his chief interests lay in ethnology and archæology. He was local correspondent of the Ancient Monuments Board for Wales, and local secretary of the Cambrian Archæological Association.

Prof. Emrys-Roberts, on account of a dysenteric condition contracted while abroad, had for some time been in imperfect health; and last autumn he himself was the first to diagnose that he had developed a serious condition which was only confirmed, but could not be alleviated, by operative procedure. He leaves a widow and six children.

ARTHUR CHARLES ROPER, F.R.C.S. EDIN.

BY the death of Mr. A. C. Roper, consulting surgeon to the West of England Eye Infirmary, on Jan. 11th, in his sixty-sixth year, the medical profession has sustained a great loss. His keen many-sided interests, his fine public and professional work, his sound judgment, his tact and kindness of heart, had made him many friends and earned him a high place in public esteem. He was a son of Mr. Charles Harriot Roper, who was for a long period a leading Exeter surgeon. Arthur Charles Roper received his early education at the Old Mount Radford School, of which his grandfather was joint principal, and began his medical career at St. Bartholomew's Hospital, London, where he obtained the M.R.C.S. in 1880. The following year he took the degrees of L.R.C.P. Edin. and L.M., and returned to Exeter to take over the practice of his father, who died in the spring of 1881. Shortly afterwards Mr. Roper was elected a member of the staff of the West of England Eye Infirmary, and his long connexion with that institution—since 1881—is associated with his position as one of the leading ophthalmic surgeons of the West of England. He was a member of the Oxford Ophthalmological Congress, and president, in 1923, of the South-West of England Ophthalmological Society. But he was also deeply interested in general surgery, and had a wide consulting practice. In the British Medical Association he played an active part, and was president of the South-Western Branch. He always took the greatest interest in the Royal Devon and Exeter Hospital, to which he had been surgeon since 1896, and consulting surgeon since 1921, and he was at one time surgeon to the Exeter Lying-in Charity. He was oculist and consulting surgeon to the Cottage Hospitals of Exmouth and Sidmouth, ophthalmic surgeon to the West of England Blind Institute, consulting surgeon to the Western Counties Institution at Starcross, and also to the Exeter Dispensary. In 1922 he gave up private practice, but continued his work as consultant oculist and surgeon. Mr. Roper, among his medical writings, contributed several articles to THE LANCET. A paper on the Enucleation of the Eyeball with Intra-orbital Injection of Cocaine appeared in our columns in 1888, and in 1922 he published the result of 489 cases of cataract extraction (THE LANCET, 1922, i., 625; and 1907, ii., 1679).

As Mayor of Exeter (1920 to 1921) he took a leading part in organising an appeal to the citizens on behalf of their hospital, and was largely instrumental in securing for the institution a sum of nearly £6500. In recognition of this service one of the wards of the new children's bungalow was named after him "The Arthur Roper Ward." In 1919 he received from the King of the Belgians the Médaille du Roi Albert for his work in aiding generally and acting as honorary oculist for the Belgian refugees in Devon and Cornwall.

In the musical world he was equally public-spirited, and his fine baritone voice was welcomed at many a concert. He was for about 45 years a member of the cathedral voluntary choir, and he had long been joint secretary of the Western Counties Medical Association. Enthusiastic in all he took up, he was a well-known croquet player and an ardent golfer. He was also an excellent actor, and took a prominent part in the formation of the Exeter Dramatic Society.

Mr. Roper is survived by a widow, two sons, and two daughters. One son was killed in the war, having won the M.C. Another son, Dr. F. A. Roper, is now physician to the Royal Devon and Exeter Hospital.

SIR ARCHIBALD DOUGLAS REID, K.B.E., C.M.G., M.R.C.S. ENG.

Sir Archibald Reid, superintendent of the X ray department of St. Thomas's Hospital, died on Jan. 15th at Chur, Switzerland, in his fifty-third year. He was the only remaining son of Dr. Douglas A. Reid, late of Tenby, and was born in 1871. He received his medical education at King's College Hospital, and qualified as M.R.C.S., L.R.C.P. in 1901. From the beginning of his career he specialised in X ray work and in 1920 took the diploma of medical radiology and electrology at Cambridge. He contributed much to the study of his particular branch of medicine, and during the war from 1915 to 1919 rendered valuable service as President of the War Office X Ray Committee. In 1917 he was created C.M.G., and in 1919 he received the further honour of K.B.E. As a consulting radiologist he held appointments in many hospitals, among them the Queen Alexandra Military Hospital at Millbank and the Royal National Hospital for Consumption at Ventnor, and was radiographer to the Evelina and Paddington Green Hospitals for Children, and to the Royal Westminster Ophthalmic Hospital. In King's College Hospital he was medical officer in charge of the X ray department. In 1911–12 he was President of the Electro-Therapeutic Section of the Royal Society of Medicine, and in 1920–21

President of Society of Radiologists. At the Seventeenth International Congress of Medicine he held the post of joint secretary, and he was an hon. member of the American Roentgen Ray Society. At the time of his death he was charged with the radiological examination of the mummy of Tut-Ankh-Amen, in coöperation with Dr. D. E. Derry, as we announced recently in our columns.

Sir Archibald Reid's scientific publications included articles in several standard text-books on "X Ray Diagnosis of Calculi," "Skiagraphy in Urinary Surgery," and "The Treatment of Rodent Ulcer." His opening paper at the Bilingual Congress of Radiology and Physiotherapy on "The Abnormal Stomach" appeared in the *Archives of Radiology and Electrology* in 1922. He was editor of "Localisation and Extraction of Projectiles" (Ledoux-Lebard and Ombredanne).

In personal tribute to his memory, a friend and colleague, S. M., sends us the following appreciation of his character and work: "That Archibald Reid should be struck down is difficult to realise, although those of us who knew him well have been conscious for a long time that all was not well with him. Full of energy, almost boy-like in his enthusiasms—a new piece of apparatus would send him off into great jubilation—he was a man of wonderful personality. From the most absolute fooling he would turn at once to matters of grave moment. He was a born organiser, and his work in connexion with the new Institute of Radiology—alas! he has not lived to see it the great meeting ground for all matters and persons associated with the science he loved so well—was gigantic. He was very fond of telephoning in the late evening, and conversations became so lengthy as to become a standing joke. One evening I went to his house and found him lying full length on an easy divan with the telephone comfortably at his elbow. I do not think Reid had an enemy. Many people until they knew him well were inclined to resent his tendency to sharpen his wits on them, but there was not an ounce of malice in it. His place will not readily be filled, and we all feel the poorer for his loss"

THOMAS WILLIAM THURSFIELD, M.D. ABERD., F.R.C.P. LOND.

Dr. T. W. Thursfield, of Leamington, who died on Jan. 14th, had reached his eighty-fifth year, and though for some years retired from the active practice of his profession, had retained in full degree unimpaired his mental and intellectual faculties. He was the son of a medical family, members of which have practised in the Valley of the Severn, in Worcestershire, and in Warwickshire for more than a century. His father, a doctor in practice at Kidderminster, died when his son was just over 16. Thomas Thursfield went to the University of Aberdeen, and passed the examinations for a medical degree some weeks before his twenty-first birthday. After graduation he studied his profession in London and in Paris, and acted as assistant in several practices, until he took charge of a private patient whom he accompanied on a voyage to Australia. There his patient died, and after some time spent in New South Wales he returned to this country, and in 1866 settled in practice in Leamington. Then after some years of general practice he passed the examination for the M.R.C.P. Lond., and entered upon a consulting practice, which in his best days included the neighbourhood and the whole of South Warwickshire. He became a Fellow of the College in 1890. In 1882 he was elected to the staff of the Warneford Hospital at Leamington, and after serving for many years retired from the active staff in 1911, and became consulting physician. In the following years he devoted himself to the interests of the institution, to which he was so sincerely attached, serving on the committees of the governing body. In his professional life he held many other appointments in Leamington and the neighbourhood.

His activities were, however, not limited to his professional work. He was always a strong politician, and took a keen interest in municipal affairs. In politics a Liberal, he became a Liberal Unionist, and remained Unionist, but with decided Liberal, even Radical, tendencies. In municipal business he served many years as town councillor, alderman, and in 1894–1897 as mayor of the borough. He was also a borough and a county magistrate. Perhaps his keenest interest, next to that of the hospital, was in the free library, to which he gave willing service nearly the whole of his life in Leamington.

He had outlived the greater part of his own generation both in and outside the profession, and the loss of his wife, to whom he had been happily married for more than 50 years, left him lonely in his last years, a loneliness often relieved by the welcome visits of friends. He died in sleep after an operation which was undertaken at his urgent request with the full knowledge that his strength, undermined by recent illness, was hardly sufficient to afford expectation of recovery. He left three sons, of whom one is in the medical profession.

CHARLES KIRK CLARKE, M.D., LL.D. TORONTO.

THE death of Dr. C. K. Clarke, since 1907 professor of psychiatry in the University of Toronto, at the age of 69, will be regretted by many of his co-workers in psychiatry in this country as well as in Canada, the more so as many of them had the opportunity of meeting him in London last summer. He was born at Elora, Ontario, and educated at the Elora High School and the University of Toronto, graduating M.B. Toronto in 1878 and M.D. in 1879. Even before qualification he showed a leaning towards psychiatry, becoming clinical assistant to the Toronto Lunatic Asylum in 1874. In 1879 he was made assistant physician to this institution, and after an interval of 15 years, during which period he gained experience as assistant medical superintendent at Hamilton and Rockwood Asylums, was appointed its medical superintendent. He held this position for six years, becoming medical superintendent of the Toronto General Hospital in 1911. While at Kingston Dr. Clarke acted as professor of mental diseases in the Queen's University, which made him an honorary LL.D. He was largely responsible for the establishment in connexion with Rockwood Asylum of a convalescent and nurses' home. Dr. Clarke was appointed Dean of the Medical Faculty of the University of Toronto in 1908, and held this post for some years. His publications are numerous not only on his special subject, but also on ornithology. For a time he was associate editor of the *American Journal of Insanity*. Dr. Clarke was known to be as much interested in the subject of mental hygiene as in that of insanity, and it caused no surprise that for the fourth Maudsley lecture,[1] delivered by him on May 24th, 1923, before the Medico-Psychological Society of Great Britain and Ireland, he took as title Mental Hygiene in Canada. One of the questions on which he felt strongly was that indiscriminate immigration to the colonies had its dangers, since the host of immigrants drifting from the old world always contains an undue proportion of defectives and mentally diseased persons. The training of psychiatrists was another subject which Dr. Clarke made specially his own. In Toronto there has been developed under his direction an optional course in psychology and psychiatry covering five years—the word "optional" signifying that less than half the candidates who apply to take this course are selected to enjoy its privileges. His desire adequately to educate the expert psychiatrist was associated with a strong impulse to promote the education of the public to demand such expert knowledge, and this work is being undertaken by the Canadian National Committee for Mental Hygiene over which Dr. Clarke presided. The loss sustained in his death is indeed severe, but it is certain that since the foundations of his work were well laid they will form the

[1] THE LANCET, 1923, i., 1123 and 1139.

basis of a widespread advance in efforts to eliminate mental disease from the community in the old and the new worlds.

JAMES TURTON, F.R.C.S. ENG.

Dr. Turton, who died on Jan. 11th at the age of 68, had been for many years a leading medical man in Brighton. He studied medicine with distinction at Charing Cross Hospital, qualifying L.S.A. in 1879 and became M.R.C.S.Eng. in the following year. Later he was elected a Fellow of the College. Dr. Turton went to Brighton in the early 'seventies as an apothecary to the late Dr. Richard Rugg, whose daughter he married. In 1886 he became identified with the Volunteer movement at Brighton. From acting surgeon he rose to the rank of surgeon-major, and retired in 1912 with the honorary rank of Colonel and the Volunteer decoration. He also served in the Army Medical Reserve, which he joined in May, 1888, holding the rank of surgeon-captain. In 1894 he raised the Sussex and Kent Volunteer Infantry Brigade Bearer Company, which was the first bearer company raised in the Volunteer Force, and he commanded that company until 1904, when he became Brigade Surgeon-Lieut.-Colonel of the Sussex and Kent Volunteer Infantry Brigade. At the outbreak of the Boer War his duties included the examination of the Sussex Militia; also the men who volunteered their services; and during the late war he was medical officer at the Royal Pavilion, Brighton, when that historic building was taken over as the Indian Hospital.

Dr. Turton took a keen interest in everything appertaining to the welfare of Brighton and for a period was a member of the town council. He was in demand as a vigorous speaker, and his knowledge of men and affairs secured for him what he had long coveted, a seat on the judicial bench.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Labour Government.

THE Government were defeated on Monday on the Labour Party's vote of "No Confidence" by 328 votes to 256. The Right Hon. J. RAMSAY MACDONALD having accepted the King's Commission to form an Administration, the House of Commons met on Tuesday, Jan. 22nd, and adjourned until Feb. 12th.

HOUSE OF COMMONS.

WEDNESDAY, JAN. 16TH.

Unqualified Persons Practising Medicine.

Mr. SPERO asked the Minister of Health if he was aware of the fact that, owing to advertisements issued by unskilled, untrained, and unqualified people practising medicine and surgery claiming special knowledge and ability to relieve and cure such dreaded diseases as cancer, &c., many lives had been seriously endangered and in some instances lost; and whether he was prepared to take immediate steps to prohibit them from advertising in any shape or form.—Sir W. JOYNSON-HICKS replied: My attention has been called to a recent case, where it appears that a patient may have been misled by an advertisement, but no information is available as to the extent of the evil to which the hon. Member refers, and I doubt whether legislation to prohibit unqualified medical practice would be regarded as uncontroversial.

THURSDAY, JAN. 17TH.

Mentally Afflicted Ex-Service Men.

Mr. GRAY asked the Minister of Pensions whether he was in a position to make a statement with regard to ex-Service men occupying the status of pauper lunatics; and whether he could inform the House the additional cost that would fall upon this country if pensions were granted to them as to other ex-Service men mentally afflicted.—Major TRYON replied: All men suffering from disabilities, whether mental or not, due to or remaining worsened by service are admitted to the full benefits of the Royal Warrant. But, as I have already stated, I am not in a position to recommend that an exception should be made in favour of any particular disability which would authorise my department to accept responsibility for men suffering from a condition not connected with their war service.

Mr. LANSBURY asked the Minister of Pensions how many ex-Service men suffering from mental disability have been discharged from maintenance by his department and transferred to the care of the Poor-law or other local authorities.—Major TRYON replied: The number of men whose mental condition could not be regarded as in any way due to or worsened by service, but who had benefited by the temporary concession in their favour which came to an end some 18 months ago, is 771.

Physically and Mentally Defective Children.

Mr. ROBERT MORRISON asked the President of the Board of Education how many physically and mentally defective children were on the roll of London special schools; and whether the figures showed an increase or decrease on the preceding year.—Mr. E. WOOD replied: The number of children on the rolls of London special schools for physically and mentally defective children for the week ending Dec. 21st, 1923, was 12,243, showing a decrease of 328 on the figures for the similar week in 1922.

Pollution of the River Lee.

Mr. HERBERT MORRISON asked the Minister of Health whether he was aware that the pollution of the River Lee, where it passed through the Metropolitan Borough of Hackney, was still exceedingly serious; that, despite prosecutions of local authorities alleged to have let crude sewage into the river, little or no improvement was taking place; and that the legal position in regard to the separate powers of the Middlesex County Council had created confusion so far as the county of Middlesex was concerned; whether, from the point of view of public amenity, public health, and the creation of much-needed employment, he would take steps to bring urgently before the Cabinet the question of putting in hand a main drainage system as satisfactory as that existing in the County of London, and, in relation to that of London, in respect of the urban districts of Edmonton, Enfield, Leyton, Walthamstow, and other districts affected.—Sir W. JOYNSON-HICKS replied: I am aware of the conditions affecting the River Lee at Hackney, but steps are now being taken which should result in a marked improvement. At Enfield works are in hand for which a loan of £53,000 has been sanctioned, and the Edmonton Urban District Council also have decided to carry out improvements at a cost of approximately £90,000. The local authorities of Walthamstow and Leyton are negotiating with the London County Council with a view to the reception of their sewage into the metropolitan system.

Convalescent Centre at Barry.

Mr. BARKER asked the Minister of Pensions if it was proposed to close the Prince of Wales Convalescent Centre at Barry; and, if so, would he have the question reconsidered on the ground that the trainees would lose the advantages of technical training or be transferred to English centres remote from their homes.—Major TRYON replied: It is anticipated that the requirements for accommodation at convalescent centres for treatment and training will not justify the retention for the whole of the current year of all of the four separate centres. A decision as to the centre or centres to be closed, and the date of closing must await further detailed examination of the applications received up to the date of the closing of the waiting list on the 31st ultimo. The hon. Members may rest assured that in the event of a centre being closed, suitable provision will be made for completing the treatment-training of the men, among whom transfers from one centre to another for various reasons are already not uncommon. The number of men who received treatment and training at Barry in 1923 was 569.

Specialist Treatment for Neurasthenia.

Mr. ROBERT RICHARDSON asked the Minister of Pensions whether any order had been issued prohibiting treatment by specialists in the case of men suffering from neurasthenia and assessed at 20 per cent. or under; and, if so, did the medical advisers of the Ministry consider that treatment was unnecessary in these cases.—Major TRYON replied: The answer is in the negative. The provision of treatment is undertaken by my department in all cases of neurasthenia in which a neurological medical officer of the Ministry considers it to be necessary.

Smoke Abatement.

Sir HARRY BRITTAIN asked the Minister of Health whether, in view of the acknowledged evil effect upon the health of the community and the wastage of money caused by ever-recurring fogs in our great cities, he was able to state that his department was doing all possible to expedite the passage into law of the Smoke Abatement Bill.—Sir W. JOYNSON-HICKS replied: It is proposed to reintroduce the Bill to which my hon. friend refers, and I hope it may be found possible to secure its passage into law during this session.

Incapacity and Death Certificates.

Mr. NAYLOR asked the Minister of Health whether his attention had been drawn to the objections raised by the issue of the new incapacity certificates (form Med. 40*b* and form Med. 40*c*), on the reverse side of which was a form of death certificate; and, if so, whether, seeing that these certificates were handed by the patients, he would take steps to have the form of death certificate issued separately.—Mr. W. A. JENKINS asked the Minister of Health if he was aware that the new issues of insurance incapacity certificates

forms Med. 40*b* and form Med. 40*c* contain on the reverse side a form of death certificate; and, in view of the pain, anxiety, and distress which might be caused to the patient and his family, would he give instructions for these objectionable forms to be immediately withdrawn.—Sir W. JOYNSON-HICKS replied: The form was prepared after consultation with representatives of approved societies and insurance practitioners, but I am referring it to the approved societies Consultative Council for further consideration.

DR. HADEN GUEST, in the course of the discussion on the Labour Vote of Censure on the Government in the debate on the address, said he had in his hand a curious piece of pink paper, which was a certificate from the National Health Insurance Authority. On one side there was a certificate that stated to so-and-so to whom it was addressed, "I certify that I have examined you and that you are unfit for work." Below that there was a certificate stating that so-and-so is "in a state of convalescence." On the reverse side of the same paper there was a certificate which ran as follows: "Certificate of death of insured person." He urged that this was a failure to appreciate the point of view of the unfortunate patient; a failure of contact with those conditions of narrow living and poverty which were the lot of the people to whom these certificates were given. In this certificate the definite suggestion was conveyed to any patient that the end of this particular period of medical treatment was the certificate of death for the insured person.

Sir W. JOYNSON-HICKS: Perhaps the hon. gentleman will allow me. There were two questions addressed to me this afternoon on this subject. It appears the proposal was made by London medical men and had the approval of the societies. As soon as I heard of it I suspended the issue of the certificate, and I have referred the matter to the Consultative Council of these societies.

DR. GUEST said he was very glad to hear that this extremely unfortunate document had been recalled.

FRIDAY, JAN. 18TH.

Calf-lymph.

Mr. ROBERT YOUNG asked the Minister of Health whether he was aware that it had been stated that private medical practitioners experienced difficulty in obtaining supplies of glycerinated calf-lymph of the same guaranteed purity as that supplied to public vaccinators by the Ministry of Health; and whether, seeing that many persons preferred to be vaccinated by their own medical advisers, he would take steps to secure the necessary powers to ensure that supplies of such lymph would be procurable at a reasonable charge by private medical practitioners.—Sir W. JOYNSON-HICKS replied: As regards the first part of the question, I am advised that there is no difficulty in obtaining from reputable firms supplies of glycerinated calf-lymph of reliable quality. The action suggested in the second part of the question would involve a large and costly extension of the present Government supply, for which, as at present advised, I see no need.

Unfit Houses.

Mr. VIANT asked the Minister of Health if he would introduce legislation amending the Public Health Act, 1875, Section 91, by extending the definition of nuisances to include common defects, as per the manual of the Ministry on unfit houses and unhealthy areas, volume 1, page 2 (general repairs), thus enabling local authorities to deal with property in which grates, stoves, windows, window-frames, doors, walls, and ceilings were defective.—Sir W. JOYNSON-HICKS replied: The Local Authority had power under Section 28 of the Housing, Town Planning, &c., Act, 1919, as amended by Section 10 of the Housing, &c., Act., 1923, to deal with working-class houses which were not in all respects reasonably fit for human habitation, and those powers should ordinarily be sufficient.

Deaths from Small-pox.

Sir W. JOYNSON-HICKS informed Mr. LEACH that six deaths from small-pox were registered during the year 1923, the outbreak being fortunately of a mild character. As regarded chicken-pox, figures are at present only available for the first three-quarters of the year; the number of deaths during that period was 41. During the first 11 months of the year, eight deaths were attributed to vaccination, while five deaths attributed to other causes were considered to be associated with vaccination. The figures for December were not yet available.

Forms Med. 40b and 40c.

Mr. ALFRED T. DAVIES asked the Minister of Health whether his attention had been directed to the new issue of insurance incapacity certificates, forms Med. 40b and Med. 40c, on the reverse side of which is a death certificate; and whether, in view of the general opinion of medical men and the distinctly indelicate nature of the inclusion of such death certificate, any action was to be taken.—Sir W. JOYNSON-HICKS replied: I am arranging for the issue of new certificates at an early date.

Somerset Small-pox Hospital.

Mr. FREDERICK GOULD asked the Minister of Health whether, in view of the fact that the Somerset County Council proposed to erect a small-pox hospital in a purely milk-producing parish where there was no public supply of water and no system of public sewerage, and having regard to the highly infectious nature of this disease and the strong opposition of the parishioners, he would refuse his consent to its erection.—Sir W. JOYNSON-HICKS replied: A public inquiry was held in November last by one of the medical officers of my department into the proposal of the Somerset County Council to appropriate certain land for the erection of a small-pox hospital, and after considering his report I sanctioned the appropriation of the land for this purpose. No further consent on my part will be required unless the county council apply for sanction to a loan to defray the cost of providing the hospital.

Disease Aggravated by War Service.

Mr. CLUSE asked the Minister of Pensions if he would state the number of men who during the past three years have had their diagnosis changed from attributed to service to aggravated by service; and how many of these had subsequently lost their pensions because the aggravation had passed away.—Major TRYON replied: During the past three years in the case of less than 2 per cent. of the men in receipt of pension, or about 18,000 men, has a disability been found on medical grounds to have been aggravated or worsened by service, instead of attributable to it. In 3500 cases, on the other hand, the diagnosis has been changed from aggravated to attributable. The records of the Ministry do not enable the last part of the question to be answered.

Amputation of Both Legs.

Major TRYON informed Mr. ROBERT MORRISON that men who had had both legs amputated at or above the middle of the thigh were entitled to the maximum constant attendance allowance of 20*s.* a week.

Small-pox or Chicken-pox?

Mr. BROAD asked the Minister of Health whether, in view of the fact that the disease notified as small-pox during 1923 was so mild as to be less fatal than chicken-pox, he was assured that it really was small-pox.—Sir W. JOYNSON-HICKS replied in the affirmative.

Fee to Midwives.

Capt. W. BENN asked the Minister of Health what security was provided for the payment to midwives of their fee out of maternity benefit drawn by insured persons under the Health Insurance Act.—Sir W. JOYNSON-HICKS replied: Beyond providing that the maternity benefit shall in every case belong to the mother, the Act does not specify any particular manner in which the money must be expended, and consequently there is no special provision with regard to the payment of a midwife's fee. The midwife has, however, the advantage of knowing that the woman will receive a fairly substantial sum by way of maternity benefit, and that she would, therefore, ordinarily be in a position to pay a reasonable fee in respect of the attendance she receives.

Medical News.

UNIVERSITY OF LONDON: FACULTY OF MEDICINE.—A course of four lectures on Cancer will be given in the Governors' Hall at St. Thomas's Hospital, S.E., by Dr. J. A. Murray, on Feb. 21st and 28th, and March 6th and 13th, at 5 P.M. The Provisional Syllabus is as follows: Lect. I.—Malignant new growths (carcinoma, sarcoma, endothelioma) of man and animals; separation from infective granulomata from benign tumours; microscopic anatomy of fully developed tumours; mode of spread and dissemination; unicentric and multicentric origin; multiple primary growths; frequency; age incidence; international statistics; increase of cancer; organ incidence; occupational cancer. Lect. II.—Experimental study of causation; virus sarcomata of fowls; spiroptera carcinoma; cysticercus sarcoma, X ray sarcoma, tar carcinoma, and sarcoma; relation to age incidence; chronic irritation; duration and intensity of stimulus; predisposition. Lect. III.—Regeneration, wound-healing and repair; irritative hypertrophy; equivocal microscopic appearances resembling new growths in early stages of development; stimulus to growth by injury; initiation of repair, activator substances; presence in rapidly growing tumours; acceleration of carcinogenesis by injury; resistance to a second production of primary cancer. Lect. IV.—Evidence of a cellular change in the malignant transformation; behaviour as new individual of primary growth; evidence from transplantation experiments; permanence of parenchyma characters; immunity to

transplanted growths: spontaneous cure; study of tumour metabolism; respiration, carbohydrate metabolism, protein metabolism, specific dietary deficiencies; rôle of diet in causation and treatment. At the first lecture the chair will be taken by Sir George Makins. The lectures, which will be illustrated by lantern slides, are addressed to advanced students of the University and to others interested in the subject. Admission is free without ticket.

University College.—A course of seven free public lectures on the Current Work of the Biometric and Eugenics Laboratories will be held on Wednesdays, at 6 P.M., from Feb. 13th to March 26th inclusive. On Feb. 13th Prof. Karl Pearson, F.R.S., will lecture on the Contributions of Sir Francis Galton to Photography: on the 20th Dr. M. Greenwood will discuss the Biometric Study of Cancer. Miss Ethel M. Elderton will speak on Inheritance in Finger-prints and the Possibility of their Use in Cases of disputed Paternity on the 27th, and Dr. Julia Bell on Colour Vision and Colour Blindness from the Historical Aspect on March 5th. Mr. Egon S. Pearson will discuss Birth Intervals as a Factor in the Size of the Family on the 12th, and Dr. Percy Stocks the Influence of Social Status and Physical Development on the Characters of the Blood on the 19th, while on the 26th Prof. Pearson will give the concluding lecture on the Contributions of Sir Francis Galton to Psychology. The lectures will be delivered in the theatre of the Biometric and Eugenics Laboratory at University College, Gower-street, London, W.C.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A special course of clinical lecture-demonstrations, including the use of the ophthalmoscope, will be given at the Central London Ophthalmic Hospital, Judd-street, from Jan. 28th to Feb. 22nd. Also a short course in dermatology, consisting of clinical demonstrations each afternoon, will take place at the Hospital for Diseases of the Skin, Blackfriars, from Jan. 28th to Feb. 10th, and special clinical lectures on the more important diseases of tropical countries will be given on Tuesdays and Thursdays at the London School of Tropical Medicine, Endsleigh-gardens, from Feb. 5th to Feb. 29th. The syllabus of the two weeks' special intensive course at the North-East London Post-Graduate College, Prince of Wales's General Hospital, Tottenham, is now available and can be obtained from the Secretary to the Fellowship of Medicine or from the Dean of the College. It includes demonstrations of clinical methods and cases and work in the general and special departments of the hospitals, and, in addition, a lecture each afternoon at 4.30 P.M. to which members of the North-East London Post-Graduate College and of the Fellowship of Medicine are invited. For those desiring to follow a course of study in the diseases of children, a special combined course has been arranged for the whole of February by the four following institutions—viz., Paddington Green Children's Hospital, Royal Waterloo Hospital for Children and Women, Victoria Hospital for Children, and the "Children's Clinic" at the Western General Dispensary. The programme consists of lectures and clinical demonstrations on medical and surgical diseases of children, including all the special departments and clinical laboratory demonstrations. Copies of the syllabus of any of the above courses with full particulars regarding fees, &c., can be obtained from the Secretary to the Fellowship of Medicine, at 1, Wimpole-street, London, W. 1.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A dinner will be held in the Hall of the College, 9, Queen-street, Edinburgh, on Feb. 15th, at 7.15 for 7.30 P.M.

ROYAL SANITARY INSTITUTE.—A reception will be held at this institute, 90, Buckingham Palace-road, London, S.W., on Feb. 5th, at 5 P.M., to meet medical officers visiting this country, under the auspices of the Health Organisation of the League of Nations, to study public health administration.

EUGENICS EDUCATION SOCIETY.—A lecture on Eugenics in the United States will be delivered by Dr. Harry H. Laughlin, Director of the Carnegie Institute of Washington Eugenics Record Office, at the rooms of the Royal Society, Burlington House, Piccadilly, London, W., on Jan. 29th, at 8.30 P.M., Prof. E. W. MacBride, F.R.S., presiding. All interested in the subject are invited to attend.

SMALL-POX IN ENGLAND AND WALES.—The number of notifications of small-pox received by sanitary authorities in England and Wales during the week ended Jan. 12th was 80, distributed as follows: Derbyshire 40 (Bolsover 1, Chesterfield 11, Heanor 3, Ripley 1, Swadlincote 7, Blackwell R.D. 14, Hartshorn-and-Seals R.D. 1, Shardlow R.D. 2); Gloucestershire 17 (Gloucester 1, East Dean R.D. 16); Northumberland 1 (Ashington); Notts 19 (Hucknall 5, Kirkby-in-Ashfield 12, Basford R.D. 2); Yorks, West Riding 3 (Adwick-le-Street).

THE University of Edinburgh is to receive the sum of £48,000 as residue of the estate of the late Mr. Thomas McKie, advocate, Edinburgh, who died in 1909. Part of the bequest is to be devoted to scientific medical and surgical research.

BATH CLINICAL SOCIETY.—A meeting of this Society was held at the Royal United Hospital on Jan. 4th, Dr. W. P. Kennedy, the President, being in the chair. Dr. R. G. Gordon exhibited a case of subacromial bursitis, showing the typical signs described by Buckley; also a case of Charcot's knee-joint in a case of tabes with marked abnormal mobility. Mr. W. G. Mumford showed (1) a case of multiple staphylococcal osteomyelitis; (2) a case of swelling in both breasts due to rapidly growing carcinoma; and (3) a specimen of a pregnant uterus removed for a cervical fibroid. Dr. V. Coates showed a case which had been operated on four years previously when an inoperable cancer of the stomach was diagnosed. The history of miscarriages suggested that this was really a case of gastric syphilis. Dr. F. G. Thomson showed a case of aortic disease with fibrillation.

SOFIE A. NORDHOFF-JUNG CANCER RESEARCH PRIZE.—In the early part of last year (see THE LANCET, 1923, i., 481) we recorded the gift by Dr. Nordhoff-Jung, of Washington, Columbia, U.S.A., of an annual prize of $500, designed to encourage researches into the ætiology, prevention, and treatment of cancer. The Commission on the award was to consist of Profs. Borst, Doederlein, v. Romberg, and Sauerbruch, all of the University of Munich, and the prize was to be awarded for the first time at the end of 1923 in recognition of the most conspicuous work in the world literature bearing on cancer research, done at a time antecedent to the allotment of the award. The first recipient of the honour is Prof. Johannes Fibiger, professor of pathological anatomy at the University of Copenhagen. Prof. Fibiger has demonstrated, following repeated experimentation, that parasites play an important rôle in the formation of certain types of tumours in the proventriculi of rats. In the citation of the committee it is pointed out that it was Fibiger who first met with success in artificially inducing malignant tumours through external irritations, and he has thus thrown wide new avenues to future findings. Though the earlier results of Fibiger's work date back a number of years, he unremittingly laboured towards an interpretation of the significance of parasitic irritants in malignant tumour formation, likewise of mechanical and chemical irritants. Fibiger and his associates have contributed generously to the literature of cancer production through the feeding to rats of oats and the application of tar to their tissues.

THE LATE DR. O. M. DE JONG.—Dr. Oscar de Jong, whose death is reported from Liverpool, had only just been appointed medical superintendent of the new Seamen's Dispensary in Liverpool, which is intended to provide the facilities of an up-to-date "Lock Department," along with advice and out-patient treatment for seamen suffering from ailments of all kinds. Dr. de Jong qualified M.B., Ch.B. Manch. in 1914, taking his D.P.H. Manch. in 1915. At the time of his death he was but 31 years of age, but gave promise of a distinguished career in dermatology. At one time assistant M.O.H. for Liverpool and Salford and clinical assistant in the skin department of the Royal Infirmary, he was also medical officer in charge of the venereal diseases clinic at the Royal Southern Hospital.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear it if reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Jan. 28th.

ODONTOLOGY: at 8 P.M.

Casual Communication:

Mr. P. S. Campkin: A Lens Permeable by Ultra-Violet Ray—Used by Patient.

Paper:

Sir Frank Colyer: A Note on Caries of the Teeth of Old-World Monkeys (with lantern demonstration illustrating Irregularities of the Teeth of Old-World Monkeys).

Thursday, Jan. 31st.

BALNEOLOGY AND CLIMATOLOGY: at 5.30 P.M.

Papers:

Dr. W. J. Smith Jerome: On the Physiological Action of the Dry Inhalation of Sodium Chloride; an Italian Method of Treatment.

Dr. A. G. S. Mahomed: On Sea-water Injections.
Members of the Section will dine together at the Welbeck Hotel, Welbeck-street, at 7.30 P.M. Those desiring to be present are requested to inform Dr. C. F. Sonntag, 80a, Belsize Park-gardens, N.W. 3, not later than by the last post on Jan. 30th.

UROLOGY: at 8.30 P.M.
Clinical-pathological Evening:
Specimens: The following will be shown by:—
Mr. W. McAdam Eccles: Perirenal Tumour.
Sir John Thomson-Walker: Cyst of the Prostate.
Mr. S. G. MacDonald: Gall-stones removed from the Urinary Bladder.
Mr. A. Clifford Morson: Enormous Vesical Calculus.
Mr. W. Girling Ball: Retroperitoneal Tumour.
N.B.—Will those intending to take part please let Mr. Girling Ball know the type of case or specimen desired to be shown; also if a microscope is required.

Friday, Feb. 1st.

LARYNGOLOGY: at 5 P.M. (Cases at 4 P.M.)
Cases and Specimens:
Cases and specimens will be shown by Mr. Souttar, Mr. Peters, Mr. A. J. Wright, Mr. C. F. Beevor, Sir James Dundas-Grant, Dr. Jobson, Mr. Kelson, Sir StClair Thomson, and others.

ANÆSTHETICS: at 8.30 P.M.
Paper:
Dr. W. Howard Jones: The Use of Chloroform and the Mis-use of Ether.

Saturday, Feb. 2nd.

OTOLOGY: at 10 A.M. (Cases at 9.15 A.M.)
Paper:
Sir William Milligan: The Surgical Treatment of Suppurative and Certain Non-suppurative Affections of the Labyrinth (illustrated with lantern slides).
Cases:
Sir James Dundas-Grant: Two Cases of Radical Mastoid Operation treated Without Plastic.
Dr. T. B. Jobson: Case of Cerebral Abscess.
Other cases will be shown.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Jan. 30th.—4 P.M., Sir H. Gauvain: Heliotherapy and Open-air Treatment.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
MONDAY, Jan. 28th.—8.30 P.M., (1) Dr. G. Arbour Stephens: A Short Historical Note on Transfusion of Blood and Injection of Medicated Liquors as carried out in 1650–1700. (2) Dr. John Poynton, Mr. Twistington Higgins, and Dr. J. M. Erydone: A Paper on the Present Position of the Treatment of Pyloric Stenosis in Infancy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Jan. 28th to FRIDAY, Feb. 1st.—CENTRAL LONDON OPHTHALMIC HOSPITAL. Clinical Lecture Demonstrations every afternoon. Mon. 2 P.M., Mr. Oliver; Tues., 2.30 P.M., Mr. Gibb; Wed., 2.30 P.M., Mr. Levy; Thurs., 2.30 P.M., Mr. Cunningham; Fri., 4.30 P.M., Mr. Williamson-Noble.—THE HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars. Clinical Instruction in the Out-patient Department every afternoon from 2.30 P.M. Tues. 5.30 P.M., Venereal Clinic. Wed., 4 P.M., Special Demonstration of Selected Cases.—WEST-END HOSPITAL FOR NERVOUS DISEASES, at 73, Welbeck-street, W. Mon., 2 P.M., Dr. Hildred Carlill: Hysteria and Other Common Neuroses. Tues., 5 P.M., Dr. Ridley Prentice: Paraplegia. Wed., 5 P.M., Mr. Lindsay Rea: Ocular Manifestations of Nervous Disease. Fri., 1.30 P.M., Sir James Dundas-Grant: Deafness in Nervous Disease.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, Jan. 28th.—5 P.M., Prof. F. Cook: Observations on the "Toxæmias" of Pregnancy.
WEDNESDAY.—5 P.M., Prof. A Fleming: Employment of Antiseptics in Treatment of Local and General Infections.
FRIDAY, Feb. 1st.—5 P.M., Prof. G. Jefferson: Injuries of the Cervical Spine.

UNIVERSITY COLLEGE, Gower-street, W.C.
FRIDAY, Feb. 1st.—5 P.M., Prof. J. Robertson: The Influence of Improved Town Planning and Housing in Public Health. (Second of three lectures.)

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Jan. 29th.—5 P.M., Dr. Graham Little: Epithelioma.
THURSDAY.—5 P.M., Dr. H. MacCormac: Ringworm.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Jan. 31st.—4 P.M., Mr. Tyrrell Gray: Abdominal Pain.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.
THURSDAY, Jan. 31st.—5 P.M., Mr. Bourne: Puerperal Insanity.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Jan. 28th.—10 A.M., Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Simmonds: Surgical Out-patients. 2 P.M., Mr. Bishop Harman: Eye Dept.
TUESDAY.—10.30 A.M., Medical Registrar: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 3 P.M., Dr. Pernet: Skin Dept.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
FRIDAY, Feb. 1st.—12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Dr. Burrell: Medical Out-patients. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

CANCER HOSPITAL, Kensington, S.W.
WEDNESDAY, Jan. 30th.—4.30 P.M., Dr. A. Leitch: The Irritation Theory of Cancer.

LONDON SCHOOL OF MEDICINE FOR WOMEN, Hunter-street, W.C.
TUESDAY, Jan. 29th (and two following days).—5.30 P.M., Dr. Gibbon Fitzgibbon, Master of the Rotunda: The Treatment of Contracted Pelvis.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)
MONDAY, Jan. 28th.—(At the Children's Hospital.) Dr. Armstrong: Clinical Demonstration.
TUESDAY.—(At the Southern Hospital.) Mr. Armour: Certain Diseases and Deformities of the Foot.
WEDNESDAY.—(At the Northern Hospital.) Mr. Monsarrat: Surgical Treatment of Thyroid Disease.
FRIDAY, Feb. 1st.—(At the Royal Infirmary.) Dr. J. Owen: Demonstration of Children showing Conduct Change and other Sequelæ of Encephalitis.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
TUESDAY, Jan. 29th.—4.15 P.M., Mr. A. H. Burgess: Some Questions in Connexion with Prostatectomy.

SALFORD ROYAL HOSPITAL LECTURES.
THURSDAY, Jan. 31st.—4.30 P.M., Dr. C. C. Heywood: Acute Rheumatism and Rheumatic Fever.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE. (At Whitworth-street West Branch.)
FRIDAY, Feb. 1st.—4.30 P.M., Dr. F. H. Lacey: Visit to Obstetric Wards.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.
TUESDAY, Jan. 29th.—(At the Royal Infirmary.) Mr. Pooley: Differential Diagnosis of Common Eye Conditions.
FRIDAY, Feb. 1st.—(At the Royal Hospital.) Mr. F. Wilson: Surgery of Infantile Paralysis.

MANCHESTER BABIES' HOSPITAL POST-GRADUATE LECTURES.
FRIDAY, Feb. 1st.—8 P.M., Dr. Hector C. Cameron: The Special Character of Disease in Infants.

Appointments.

ACLAND, T. D., M.D. Lond., F.R.C.P. Lond., M.R.C.S., has been appointed Honorary Consulting Physician to the Ministry of Pensions.
LAPPER, C., L.R.C.P. & S. I., Poor-law Medical Officer for Loughborough.
WHARTON, J., M.D. Camb., Hon. Ophthalmic Surgeon to the Manchester Royal Infirmary.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—Asst. H.S. £130.
Birkenhead and Wirral Childrens Hospital, Woodchurch-road.—H.S. £100.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £120.
Bournemouth, Holiday Home for Tuberculous Ex-Service Men.—Res. Med. Supt. £500.
Bradford City Municipal General Hospital, St. Luke's.—H.P.'s and H.S.'s. Each £200.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Registrar. 50 guineas.
City of London Hospital for Diseases of the Heart, Victoria Park, E.—Radiologist.
Discovery Expedition.—S. £600.
Dundee Royal Infirmary.—Hon. Asst. P. for Diseases of Skin.
Eday Parish, Orkney.—M.O. £340.
Elizabeth Garrett Anderson Hospital, Euston-road.—Asst. Clin. Pathologist. £100.
Exeter, Royal Devon and Exeter Hospital.—Sen. H.S. £250.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Sen. H.S. £175.
Hospital for Sick Children, Great Ormond-street, W.C.—Cas. O. Also Asst. Pathologist. Each £400.
Hull Royal Infirmary.—Sen. H.S. £200.
Lancashire County Mental Hospital, Winwick, Warrington.—A.M.O. £432.
Leeds Maternity Hospital.—Univ. Tutor in Obstetrics, &c. £300.
London Lock Hospitals, 283, Harrow-road, W., and 91, Dean-street, W.—Hon. Ophth. S.
London (Royal Free Hospital) School of Medicine for Women.—First Asst. in Obstet. and Gynæcol. Unit. £700.
Manchester Hospital for Consumption, &c.—Res. M.O. £300.
Middlesex Hospital, W.—Res. M.O.
North Marylebone School of Mothercraft, Maternity Clinic.—M.O. £1 11*s.* 6*d.* per session.
Nottingham General Hospital.—H.P. £200.
Plymouth, Devon and Cornwall Sanatorium for Consumptives, Didworthy, South Brent.—Res. Med. Supt. £550.
Queen Mary's Hospital for the East End, Stratford, E.—Hon. Asst. P.
Royal Earlswood Institution, Redhill, Surrey.—Jun. Asst. M.O. £250.
South London Hospital for Women, South Side, Clapham Common, S.W.—Asst. S.
Stockport Infirmary.—Physio-therapeutist.
Weir Hospital, Grove-road, Balham, S.W.—Asst. Res. M.O. £100.
West London Hospital, Hammersmith-road, W.—Hon. Med. Reg., Hon. Surg. Reg., and Hon. Obstet. Reg.
Westminster Hospital, Broad Sanctuary, S.W.—Asst. S.
West Riding Asylum, Wakefield.—Jun. Asst. M.O. £400.
Winsley Sanatorium, near Bath.—Sen. Res. M.O.
Wolverhampton and Staffordshire Hospital.—H.S. £150.
York City Mental Hospital, Fulford, York.—Locum Tenens. 7 guineas weekly.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Nantgaredig, Carmarthen; Forres, Moray; Pershore, Worcester; Greenlaw, Berwick.

The Secretary of State for the Home Department gives notice of a vacancy under the Workmen's Compensation Act for the district of the Wrexham County Court. Applications should reach the Private Secretary, Home Office, London, not later than Feb. 9th.

Births, Marriages, and Deaths.

BIRTHS.

HARDY.—On Jan. 13th, at Beaufort-road, Edgbaston, the wife of Dr. T. L. Hardy, of a son.
WARD.—On Jan. 15th, the wife of Gordon Ward, M.D., Sevenoaks, of a daughter.

MARRIAGES.

WILSON—AYRTON.—On Jan. 12th, at Chester, Graham Selby Wilson, M.D. Lond., M.R.C.P. Lond., D.P.H., to Mary Joyce Ayrton, M.A., M.B., Ch.B. Camb.

DEATHS.

EMRYS-ROBERTS.—On Jan. 15th, at Archer-road, Penarth, Edward Emrys-Roberts, M.D., Professor of Pathology, University of Wales, Cardiff, aged 45.
PHILIP.—On Jan. 15th, at Disraeli-road, Ealing, of heart failure, James Allan Philip, M.A., M.D., late of Boulogne-sur-Mer, aged 78.
REID.—On Jan. 15th, at Chur, Switzerland, Archibald Douglas Reid, K.B.E., C.M.G., aged 52. Beloved and only surviving son of Douglas A. Reid, M.D., J.P., 1, St. Augustine's Mansions, Westminster, S.W. 1, late of Tenby, S. Wales.
SIBBALD.—On Jan. 14th, at Crewkerne, Bernard Ian Graham Sibbald, M.B., aged 52 years.
THURSFIELD.—On Jan. 14th, Thomas William Thursfield, M.D., F.R.C.P., of Leamington, aged 84 years.
TURTON.—On Jan. 11th, James Turton, J.P., F.R.C.S., of 42, Norfolk-square, Brighton, aged 68 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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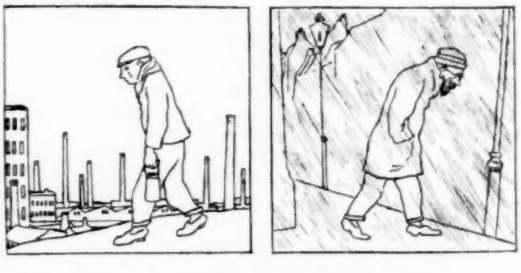
Notes, Comments, and Abstracts.

INSURANCE MEDICAL PRACTICE: A COMPARATIVE VIEW.

THE club doctor or Kassenarzt is passing through an anxious time in Germany. As our Berlin correspondent related last week, the radical changes in attendance on club members, forced on the doctors by the new Government, have caused a great upheaval. Medical opinion in Germany has pointed out as one man that the free-choice system of club practice is the only one likely to ensure careful attendance to club members, and popular opinion has supported this view. So far the doctors have been able to maintain their position of being unwilling to work under conditions which they regard as derogatory. Historically, it is interesting that, whereas in the drafting of the Insurance Acts free use was made of German precedents, Germany should now be turning with envious eyes to the present conditions of insurance medical service in this country.

In the *Medizinische Klinik* for Jan. 13th Dr. R. Güterbock makes a critical review of insurance against sickness and invalidity as it exists in this country. Its advantages he regards as too evident to require emphasis. The only drawback he finds in the provision of hospital treatment; this, he says, is closely related to the English plan of leaving their hospitals largely dependent on voluntary offerings, which results in the provision of a sufficient number of free beds in towns. But even in England, he adds, the arrangement is becoming intolerable and the medical profession is urgently demanding the provision of larger sums for hospitals and for the erection of maternities. Dr. Güterbock takes account of the relatively unfavourable position of the deposit contributors who, he believes, belong usually to the poorest of the poor—"tramps, drunkards, and skrimshankers." It is very hard on them that their sickness benefit should be limited by the sum which is paid into the fund, and for these, he says, new ways are being sought; for this category of humanity German insurance law makes no provision whatever. A further possible disadvantage Dr. Güterbock sees in the lack of death-money, to set against which there is the old-age pension, the unemployment benefit, and the better hospital provision. Such disadvantages as exist are entirely outweighed by the simplicity and economy produced by the pooling of sickness, invalidity, and unemployment benefits. In Germany no exact figures of the cost of administration have been made public; Dr. Güterbock quotes, but has been unable to check, the statement from an English source that in Germany administrative expenses amount to 70 per cent. He concludes his review by briefly referring to the dispute between the British Minister of Health and the doctors. The Minister, he said, based his proposed reduction in the capitation fee on the salary reduction of civil servants. The doctors' rejoinder would apply equally to German circumstances—viz., that the doctor draws no pension, that during holidays his income falls while his outgoings continue, that the running expenses of practice, of which the official knows nothing, continually rise. But the British Minister fully realised that insurance service must in any case be so paid as to ensure a sufficient supply of capable doctors. All parties in England—the Government, the societies, organised labour, public opinion—are clear that only by the voluntary efforts of a medical profession protected against material want can any system of State insurance be permanently maintained: that, in fact, by lowering the standard of living of the medical profession the insurance principle will collapse, and the general health of the people must suffer. This is Dr. Güterbock's final comment.



The position of the Kassenarzt has recently become so pitiable as to elicit some measure of public sympathy in Germany, as may be seen from a cartoon here reproduced from a recent issue of *Simplizissimus*. The legend runs:—

Left: Work so that you may pay regularly your club money.
Right: When you are ill, the miserably paid club doctor comes. . .

One good feature of an otherwise painful situation is that the quarrel with the clubs has united the medical profession in Germany as it has never been united before.

COUNTY SCHEMES FOR THE PREVENTION OF TUBERCULOSIS:

THEIR ORGANISATION AND ADMINISTRATION.

AT the Royal Institute of Public Health on Jan. 23rd Dr. G. Lissant Cox, central tuberculosis officer, Lancashire County Council, delivered a lecture on this subject, of which the following is an abstract.

It must be remembered, said Dr. Cox, that all schemes and measures dealing with tuberculosis should have prevention as the ultimate aim: it is more important that at a tuberculosis dispensary patients be taught how to use paper handkerchiefs than that they should be supplied with cod-liver oil and malt. Any thorough tuberculosis scheme should be capable of dealing with: (1) pulmonary tuberculosis in children and adults; (2) non-pulmonary tuberculosis in children and adults; (3) tuberculosis in cattle.

I do not propose to deal with tuberculosis in cattle, except to say that if public opinion would force on measures to reduce the 2 per cent. or thereabouts of cattle with tuberculosis of the *udder*, very many children would be saved from crippling disease, many from death, and much expenditure saved on treatment.

The Tuberculosis Officer and the County.

Given sufficient scope and material, the success of any scheme depends ultimately, of course, upon the man appointed to work it. It is, I think, generally recognised that counties or county boroughs large enough to be able to employ one or more whole-time tuberculosis officers show more efficient schemes and better results than places where only a part-time officer can be employed. There are two conceptions as to the main lines of a tuberculosis officer's work. First, that he be a first-rate clinician, paid as such, and looked upon as a consultant by the doctors in general practice, but having administrative ability and a public health outlook; and, secondly, that he be a part-time tuberculosis specialist undertaking other public health work (school medical duties, &c.).

The very great differences which exist in England between the size of different administrative units is a factor whose importance is not infrequently forgotten, especially by persons who elaborate theoretical schemes for the prevention and treatment of tuberculosis. I need only give instances such as the administrative county of Lancaster, containing a population of 1¾ millions, and the counties of Huntingdonshire with 55,000 of a population, and Rutland with less than 20,000.

Dispensary Organisation.

The headquarters staff and intelligence department of the campaign against tuberculosis is at the present time located in the tuberculosis dispensary and works through the dispensary organisation. The dispensary organisation consists of a tuberculosis officer, tuberculosis nurses or health visitors, the dispensary clerk or clerks, and, in addition, a building. Its functions include: (1) Diagnosis of patients or contacts of patients, and determination as to forms of treatment; (2) supervision of home treatment, including general hygienic precautions as to spread of infection; (3) keeping of records and information of all kinds; (4) keeping in touch with the local care committee, and, in county areas, with the local sanitary authorities.

All tuberculosis schemes consist of one or more such dispensary units. The size or number of these units will depend upon the size of the population of the county. The minimum number of population for a single whole-time tuberculosis specialist should be about 150,000. As a general rule, if the area contains less than this number, there is not enough tuberculosis work for one man, who in consequence must take on other work and cease to be a full-time tuberculosis officer. It must be remembered that a county area consists of a number of local sanitary areas, either rural districts, urban districts, or non-county boroughs, each of which has a separate sanitary administration—that is, each has a medical officer of health with a staff and a council to which he is responsible.

In Lancashire the population in the county area alone, excluding the county boroughs, is 1¾ millions. The dispensary units are five in number, and consist of an average population of 345,000, each area being under the charge of a consultant tuberculosis officer having a chief dispensary with an office, clerical staff, X ray room, laboratory, and throughout the unit two, three, or more branch dispensaries; and to assist the consultant tuberculosis officer there are in these large dispensary units one or more assistant tuberculosis officers, and in each unit six or eight tuberculosis nurses. This arrangement has up to the present worked very well. In spite of many of the local sanitary areas having populations varying from 20,000 to 45,000, it has been found quite easy to make arrangements with local medical officers of health whereby all visiting is done by county nurses, the initial reports on the homes being accepted by the local medical officers of health, so that no overlapping whatever occurs. This is a very important point in county administration.

If the tuberculosis officer is really to be a specialist, treated as a consultant by the general practitioners, he must have, in addition to natural ability, all modern aids to diagnosis, and no scheme is complete which does not include the provision of an X ray plant. This, to be of greatest use, must be in the chief dispensary and used by the consultant tuberculosis officer himself, as is done throughout Lancashire.

No tuberculosis scheme is complete without care work and care committees. The tuberculosis officer must act as medical adviser to prevent any overlapping as regards assistance to the patient from other agencies. Not the least important result of having care committees composed of representatives of local authorities, trade-unions, guilds of help, and others is the knowledge gained by these members of the real nature, extent, and aims of the county or borough work dealing with the prevention of tuberculosis. The five dispensary units in Lancashire have at present 15 care committees, and the amount or value of goods distributed last year was £1500.

Institutional Accommodation.

The provision of institutional treatment which is necessary in every complete and efficient tuberculosis scheme will include (*a*) sanatoriums for children and adults (pulmonary tuberculosis) for early and intermediate cases and observation cases; (*b*) pulmonary hospitals for the isolation and treatment of chronic or advanced cases, or cases acutely ill, as near to their homes as possible; (*c*) arrangements with general hospitals and infirmaries and convalescent homes for surgical cases, children and adults; (*d*) special hospitals for children suffering from non-pulmonary tuberculosis; (*e*) tuberculosis settlement. It will be easily seen from this list of different kinds of institutional treatment that the larger the area, the better chance there will be of financial arrangements to carry them out. With regard to children, provided that nothing is done as regards tuberculous cattle, it would appear that about one bed per 19,000 of the total population is required for pulmonary cases, and one bed per 12,000 of the total population for non-pulmonary cases.

Sanatorium Treatment.

Given reasonably early cases for treatment, and an institution with a whole-time and capable man at its head, sanatorium treatment still holds the field. In Lancashire, of 3950 early and intermediate cases of whom 2270 went to a sanatorium and 1680 did not, the deaths at the end of 1922 among those who entered upon treatment during the five years 1914–18 were as follows: (*a*) Of patients with "negative" or "absent" sputum at the end of 1922, 16 per cent. of sanatorium cases and 42·6 per cent. of non-sanatorium cases had died; (*b*) of patients with "positive" sputum at the end of 1922, 66·2 per cent. of sanatorium cases and 84·8 per cent. of non-sanatorium cases had died. As regards prolongation of life, these results favour sanatorium treatment. Even if they were less favourable, it must never be forgotten that from the more important side of the prevention of the disease a stay in a sanatorium has, in the main, a definite educational result on the patient, his family, and his friends.

Cost of a Tuberculosis Scheme.

All tuberculosis schemes are financed partly from the rates and partly by grants of 50 per cent. of the net approved expenditure by the Ministry of Health, which also makes certain other payments for specific purposes, whilst the Ministry of Pensions contributes for the present towards the cost of treatment of tuberculosis pensioners. In Lancashire a penny in the pound on the rateable value brings in £36,000. Our scheme costs about one penny halfpenny (1½*d.*) as far as the rates are concerned, so that the total gross expenditure is about fourpence in the pound on the rateable value—or to put it another way, about £150,000 per annum for a population of 1¾ millions.

THE TRAINING OF AMERICAN NAVAL HOSPITAL CORPS.

THE ranks of the officers of the Medical Corps are acting assistant surgeon, assistant surgeon, and assistant dental surgeon, who all "have the rank of lieutenant (junior grade)"; passed assistant surgeon, passed assistant dental

surgeon, lieutenant; surgeon or dental surgeon, lieutenant commander; medical inspector, commander; and medical director, captain or rear-admiral. Above all these is the "Chief of the Bureau of Medicine and Surgery, with the rank of rear-admiral, title of Surgeon-General, and pay and allowances of major-general in the army." In the Nurse Corps are nurses, chief nurses, and superintendents. The "Hospital Corpsman" begins as a hospital apprentice, 2nd class (probably ordinary seaman), who does not appear to go to sea until he is advanced to 1st class; in time he becomes a petty officer with the title of pharmacist's mate, 3rd, 2nd, or 1st class; later he may be promoted chief pharmacist's mate, and then to warrant rank as pharmacist, and after six years more to chief pharmacist.

These men are all to be trained by means of a recently published handbook [1] which explains the navy to them, telling them how it is organised by departments, and lets the intelligent and curious recruit understand what is happening around him and why; besides it sketches for him the history of the Hospital Corps, and gives him a list of all the officers who have presided over the medical department, from William Paul Crillon Barton in 1842, to Edward Rhodes Stitt to-day; it tells him where the money comes from to keep the naval hospitals going, and what establishments there will be to receive him if, by ill luck, he is invalided out of the Service—all very interesting. Primarily this book is for the education of the recruit, but the needs of the petty officer, away by himself with no medical officer to rely on, in a small craft or at a shore station, has been ever in the minds of the compilers, and thus are explained some surprising directions. For example, if appendicitis is suspected the "corpsman" is advised to "make a white count if possible," and the treatment of Vincent's angina with Fowler's solution or chromic acid, as recommended, would appear an absurd and risky suggestion to be put before any chance orderly. There are the usual sections on anatomy (the picture of the skeleton is credited to the manual of the Royal Naval Sick Berth Staff, and the bones of the carpus are given in both the ordinary and the Berne nomenclature); physiology, first aid, including dental first aid and temporary stoppings, bacteriology, blood and urine examinations, diseases, including human parasites, with very detailed studies of the exanthemata, field sanitation, marches, X rays, drug addiction, massage and physiotherapy, chemical warfare, statistics, death, and embalming. There is a section on nursing by members of the nurse corps, with admirable detail for making beds. Chief pharmacists provide chapters on chemistry, pharmacy, materia medica, clerical work (with most useful lists of forms required on occasion, as when an officer wants leave or a deserter returns on board), administration of naval hospitals, foods, and dietaries—all most excellent.

The section on foods is particularly striking with its numerous tables to assist the hospital commissary (quartermaster, as we might say, or steward), a chief pharmacist, to construct from day to day and a week ahead, the diets, which are ordered to be varied and pleasant to eye and palate, and to give to each man 3563 calories per day. The lists of the 225 possible rations from which to choose are complete and detailed, and include, for example, "Angel cake; one piece, $1\frac{1}{4}'' \times 2'' \times 2\frac{1}{4}''$; 1·3 oz.; 100 calories. Pineapple, canned, sliced; one slice and three tablespoonfuls juice; 2·3 oz.; 100 calories. Lamb chops, braised, two chops; meat portion, $2'' \times 2'' \times \frac{1}{4}''$; 200 calories." It is always held in the merchant service that American sailors are very well fed; it seems that their bluejackets do pretty well too. There should have been greater care in revision; nerve fibrils do not "enervate" muscles (p. 65); "straight jacket" (p. 137), and "Colle's" fracture (pp. 81, 82, and in the index) are further examples. But in spite of small blemishes it is a wonderfully good book, and the various articles reflect credit on their authors. The "corpsmen" for whom it was thought expedient to have this book written should become valuable men; certainly the articles contributed by their chief warrant officers do great credit to the education they have been given during their service in the Hospital Corps of the United States Navy.

[1] Hospital Corps Handbook; United States Navy. 1923. Published by the Bureau of Medicine and Surgery. Washington Government Printing Office. 1923. Pp. 717. $1 (5/).

THE BRIGHTON INTERCEPTING SEWER.

WHEN the Brighton intercepting sewer was constructed—the work was begun in January, 1871, and completed in June, 1874—the population of the district served by it (the towns of Brighton and Hove) was, in round figures, 100,000. The population of the district is now over 190,000, and the time has come when attention must be given to the sewer, and the corporation is now seeking a provisional order that it may have power to cope with the demands that are being made upon the sewer to-day. By the present plan, as originally designed and constructed by Mr. (afterwards Sir) John Hawkshaw, the outfall into the sea at Portobello, some miles east of Brighton, is completely tide-locked for six and a half hours during each 24 hours, and more or less tide-locked for 12 hours per day. This has resulted in the sewer tank being charged unduly and the storage for storm water reduced. It is now proposed to reconstruct the outfall end of the sewer, and put down a new outfall from the point where the original sewer ended, and to have four 48 in. discharge pipes instead of three, and to carry the outfall 100 yards further out to sea. It is also proposed to fix three pumps, each with a capacity of 900 cubic feet per minute, two to be always working and the third as a standby, thus providing for a continual discharge for 24 hours per day, instead of the present limited discharge, and providing for an even flow of sewage as against the present storage for some hours. At the Ministry of Health inquiry held on Jan. 15th tribute was paid to the work of Sir John Hawkshaw in constructing the sewer, the cost of which was £100,000, the last repayment of the loans falling due during next year. This repayment has been a long and expensive process, but it has been warranted by the town's clean bill of health; so also doubtless will be the expenditure of £120,000 which is now being sought to provide not only for the needs of the moment, but for a population of 300,000.

THE PANEL SERVICE.

To the Editor of THE LANCET.

SIR,—Apropos of the recent case against two Lancashire doctors who were fined £1000 between them for breach of rules, would it not be reasonable for the panel practitioners to know exactly what are the powers of the Minister of Health (from whose decision there is no appeal) as regards the infliction and extreme range of penalties? The patients are informed on their cards (which they seldom even read) of the maximum penalties which can be inflicted on them—one never reads in the daily press of a patient being punished. Why not inform the practitioners? We have read of the £1000 fine; what is to prevent us reading of a £10,000 fine, imprisonment, or such other punishment? What would happen if a panel practitioner, whose panel was worth £200 per annum, were fined £1000 and he promptly gave three months' notice and resigned? Could any legal proceedings be taken against him?

I am, Sir, yours faithfully,

Jan. 12th, 1924. "PANEL DOCTOR."

SPUTUM TREATMENT OF WHOOPING-COUGH.

Prof. R. Kraus,[1] of Vienna, who was formerly in charge of the Serum Institute at Butantan, Sao Paulo, describes his method of treatment of whooping-cough, which has been employed in more than a thousand cases in hospital and private practice in the Argentine, Uruguay, and Brazil. The method consists in the subcutaneous injection of "antitossin," which is a preparation of the sputum of whooping-cough patients obtained during the first few days of the paroxysmal stage. The sputum is not employed until it has been found to be free from tubercle bacilli and other organisms by aerobic and anaerobic tests and by animal inoculation. The results of treatment were that the injections were followed by disappearance of vomiting, diminution in the number of the attacks, and a change in their character, the cough first becoming catarrhal and then ceasing altogether. Early treatment gives the best results. No bad effects were observed apart from transient local tenderness and infiltration and a rise of temperature which fell to normal in 24 hours. The dosage ranged from 1–5 c.cm., but as a general rule it was best to begin with 2 c.cm. and to repeat the injections every two or three days. An improvement was often seen after one or two injections, while in other cases three or four injections had to be given before any change was noticed, and some did not react at all. In the last group of cases successful results were obtained by inoculation of the patient's own sputum. The nature of the active agent in the preparation has not yet been determined, but the treatment is probably a form of protein therapy combined with some specific agent, as treatment of pertussis with the sputum of healthy persons or asthmatics had no effect.

T. N. H.—We have never heard of poisoning by CO initiating permanent and serious blood changes. It is occasionally followed by pneumonia, presumably bronchopneumonia, just as it sometimes leads to multiple cerebral hæmorrhages. Harmful after-effects are certainly rare. Practically speaking, carbon monoxide is poisonous only because it combines with hæmoglobin, the shortage in oxygen-supply when not excessive being completely recoverable.

[1] Wiener medizinische Wochenschrift, Nov. 24th, 1923.